


15643/B

J. xx xviii

18/6



Digitized by the Internet Archive
in 2018 with funding from
Wellcome Library

<https://archive.org/details/b30505094>

A N
E S S A Y
O N T H E
Medicinal Education
O F
C H I L D R E N;
A N D T H E
TREATMENT of their DISEASES.

Translated from the FRENCH of

M. BROUZET, Physician in ordinary to the
French King, and to the Royal Infirmary and Hospitals
of Fontainebleau; Correspondent of the Royal Academy
of Sciences and Belles-Letters, at Beziers, &c.



L O N D O N,

Printed for THOMAS FIELD, at the Wheat-Sheaf,
the Corner of Pater-noster Row, Cheap-side.

MDCCLV.





T H E

P R E F A C E.



THE education of children, considered in the most extensive view, includes a great number of subjects that are not usually comprehended under the term education, which is commonly confined to one of its branches, viz. moral education.

However, the forming of a child, which in its general sense is comprehended under the word education, signifies not only enlightning his mind, and emplanting in his heart a regard to religion, to society and himself, which are the true and only objects of a moral education, but also providing

viding for his production, watching over his birth, and the growth of his body, preventing the disorders of his organs and humours, establishing the constant order or succession of his functions, and, in a word, raising an infant to perfect manhood; this is the subject of that education we here call medicinal.

It requires but a very moderate degree of attention to the prodigious indifference most people seem to shew to the medicinal education of children, to perceive, that physicians have a right to reproach them with the same negligence with which moralists incessantly blame them with respect to moral education.

The first, which alone is that with which we are concerned, is trusted to governesses, nurses, and mothers; who are the faithful depositaries of a thousand petty practices that are often useless or pernicious, that are always employed without rule, and perpetuated by a constant tradition from one generation to another, without reformation or new discoveries.

The diseases themselves of that tender age in which they are more frequent, more dangerous, and more difficult of cure*; of that age, which ought itself to be

* Et sanè perquam difficile est puerorum morbos, causas & symptomata dignoscere, & sæpe divinatione opus esse,

be considered as a disease, that has its beginning, its progress, its height, its stages, and its end, are seldom under the management of the physician. Nurses or empirics have every where the management of the diseases of infancy, and there is not any considerable town in which the treatment of children is not a distinct office, an office always filled by intruders.

Physicians, to whom alone this care properly belongs, are loudly taxed with inexperience in the diseases of children, some of which, 'tis true, appear of a different nature from those of adults. But if some physicians, and even most of them, want in this point sufficient experience, it is owing to those who by usurping their office have deprived them of the opportunity of collecting those observations they would otherwise have made; just as in the other cases in which the enterprizes of these same persons have deprived them of the treatment of a part of the diseases that ought to fall under their inspection: and which must become less familiar to them from the continuance

esset, quia defectus suos vel ob denegatam loquelam, vel ob intellectûs imbecillitatem explicare non possunt. Unde res apud plurimos eo devenit ut credant vel nullam infantum morbis deberi curam, vel medicorum saltem non esse circa hanc occupari. Propterea major habetur fides idiotæ alicui mulieri, quàm exercitato medico, quasi res per se cognitu difficilior à muliere medicastrâ faciliùs dignosceretur. *Whofferi Hercules Medicus, de morb. inf. p. 353.*

of this abuse ; an abuse that has not only rendered the branch thus detached less perfect ; but has also, by this separation, dried up one of those sources of observation that ought to concur in establishing the general doctrine and foundation of the art. We shall shew in a few words the inconveniences that attend this usurpation. Is it not evident, that the physician, on his having the direction of infancy, and the treatment of the diseases peculiar to that age, would make improvements that would be of public advantage ; while the same opportunity for making observations would be always thrown away on the empiric ?

The medicinal education of children, which is commonly managed with such negligence, is however of very great importance, and the faults that may be committed in it are attended with the most dangerous consequences. These are known truths. “ Children, it is said, are like dough, “ clay or wax, susceptible of all forms and “ all impressions.” This common manner of speaking very strongly expresses the indifference of nature, or that kind of equilibrium or indetermination, which depends on the temperament being not yet formed, the bodily appetites not yet determined, nor the taste or desires fixed, and on that delicacy or flexibility of the organs which render them so proper to obey the
the

the action of all external causes, as well physical as moral.

No body can reasonably doubt that an infant, well formed at his birth, may become weak and valetudinary by the negligence of the persons to whose care he is intrusted ; that his body, by the same inattention, may contract many external disorders ; and that, on the contrary, an infant of the most tender frame may escape the dangers of infancy, and become strong and robust by a proper management : instances of these alterations are very common and obvious.

That the mind may experience those changes that are either good or evil by the same class of causes, is an undoubted truth. It is almost grown into a proverb, that the tender brain of Newton or Alexander altered in their infancy, by a small compression or slight commotion, might have rendered the first stupid, and the other a wise king. In reality the essence of the soul is in its own nature invariably the same, and the infinite variety we observe in the turn of the mind, in the characters and inclinations of men, only proceeds from the different constitution of the organs with which it is connected in different individuals. The disorders it experiences in its operations, whether transient or constant, in consequence of diseases and affections

merely corporeal, are too well known to make it necessary for us to insist any longer on this subject. We shall content ourselves with observing, that a mere physical cause may effectually dispose our organs to an habitual wrong judgment, and the mental disorders that are only a consequence of it ; and in like manner physical causes may correct the errors of the mind and the bad dispositions of the heart, when they depend on such a disorder of the organs as will admit of a cure. Cures of this kind, produced by medicines and a proper diet, are not uncommon. We every day treat with success a delirium in acute diseases. Madness, or a chronical delirium, is frequently conquered by the assistance of medicines ; and if an entire loss of memory, the different kinds of folly, &c. have been more than once the consequence of certain diseases ; favourable changes have also been produced by a revolution of the same nature. Thus we have seen children, and even young men and women, after a dangerous disease or violent passion, become stupid or vitious, though they were before endued with wit, and blessed with good dispositions.

On the other hand, the effects of the passions on the animal œconomy, are neither less obvious, nor less known. Daily observation but too plainly shews, how
much

much mischief may be occasioned by a sudden passion, or a train of disagreeable ideas. We have seen people die of fear, or from the violence of rage : the disorders of the soul, as affliction, melancholy, &c. are placed among the most common causes of chronical diseases, and even of malignant fevers : a piece of unexpected news, and sudden joy, have sometimes recovered the patient when at the gates of death.

But if the dispositions of our bodies, and the action of external causes, have such power over the affections of the soul ; and if the passions of the mind have such an empire over functions purely corporeal, and that in every age of life ; how much more must this reciprocal influence shew itself by sensible effects, in that age in which the soul, perfectly inexperienced and inactive, cannot oppose against outward impressions, the ramparts of experience and habit, and in which the organs are still incapable of a resistance which they can only acquire by time and the progress of age.

The affections of the minds of children, and their moral causes, as precepts, rewards, punishments, and application to study, in some degree belong to the medicinal education : the first belong to them as they are the effects of the animal œconomy, and the second as diet, or as remedies.

But the administration of all these assistances requires the greatest degree of prudence. For as we may promise ourselves the most happy success from the facility by which we may form the minds and bodies of infants, by a proper management, almost as we please; so we have equal reason to fear the neglecting to improve this facility, or abusing it by a mistaken conduct. The medicinal education of children is therefore of equal importance, from the infinite advantages attending a good method, and from the inconveniences that result from negligence and an injudicious management.

No body can require a proof of its being for the advantage of each individual, and of society in general, that men are formed with sound bodies and minds, and that they are good and robust. We have hitherto mentioned only an healthful infancy, and the evils and disorders incident to that age. The wise administration of medicinal assistances will be much more necessary for infants who are weak, valetudinary or actually sick. Now the inconveniences and diseases that are almost always the portion of infancy, but too much increase the difficulty of the medicinal education.

This difficulty, besides the number and the danger of most of these diseases, also principally depends, 1st, On the disorders
of

of children being more difficultly known, from our wanting an assistance which we commonly receive from adults, I mean the report of the patient. We must however confess that in most cases, we may supply the want of this report, by attending to sensible signs, 2dly, On nature, which being a novice in children, if I may use the term, it, but seldom favours the solution of their diseases by a salutary crisis; and besides the prudent expectation raised in the mind, from which a physician may sometimes promise himself a happy success in the treatment of adults, cannot take place, or, at least, be depended upon with the same security in the diseases of children. 3dly, On the difficulty of making them take the necessary medicines, and the inconveniences which arise from the violence we are obliged to make use of in order to overcome their repugnance to them.

The best means of answering all the views that arise from the considerations just laid down, would in my opinion be, to deliver the medicinal education of children to physicians *, and by the authority of
of

Sequidem multi infanti obſtetricum & vetulorum inſcitia, temeritate, injuriaque miſeram oppetunt mortem. Quid ergo utilius quam pueris medicâ ope ſuccurrere, cum ſint loquelæ expertes, nec aliter affectus ſuos niſi per vagitus exprimere queant. Videmus etenim bruta, pullos, catullos ſuos inſtinctu naturæ lingendo, expoliendo, fovendo,

of the laws, to suppress in their favour, or more properly in favour of the public, the abuses that in this respect have arisen from an usurpation that is prejudicial, whatever credit it may have gained from ministers, physicians, and empirics. For, in the treatment of diseases, it is not sufficient to imitate what we see performed by the masters of the art, to follow a general method, to use without any just and regular principle precepts found in books of physic, or to see a great number of diseases without the spirit of observation so useful to the progress of the art. There is required, on the part of physicians, especially in the diseases of infants,

First, A knowledge of anatomy, that they may be able to know exactly the effects of the positions of the members of an infant that is swathed, of his different dresses, exercises, sports, &c.

Secondly, A knowledge of chemistry sufficient to make them distinguish by more certain means than the vain practice of the multitude, the nature of the aliments usually given to children, and to determine whether it would be necessary or advantageous to substitute in their room some-

vendo, alendoque sustentare : quanto magis homini eadem natura hoc ingeneravit ut salutem liberorum suorum, pignorum charissimorum, nutritu, educatione & medicatione consultant. *Leonil. Faventin. de Victoriis de morbis infant. p. 2.*

thing

thing more salutary, that is neglected, or not so much used.

3dly, A sufficient experience in the phenomena which I call medicinal, and a judgment capable of regulating with wisdom the medicinal use of the passions, studies, and amusements of children; and, in a word, the ability to prescribe that important part of their diet which relates to the affections of the soul.

Fourthly, A clinical experience in the treatment of their diseases.

Fifthly, An habit of examining objects in general, so as to discover the prejudices that have crept into this branch of physic more than into any other, and a firmness sufficient to make them shake them off; taking however the prudent precaution of not carrying things too far, and being guilty of a rashness in reforming abuses, that may become more dangerous than the abuses themselves. The best method of finding this just mean, in my opinion, is entering into the discussion of the advantages and inconveniences attending each practice, resting on the customs established in different countries, and on a number of experiments prudently made, especially when we are sufficiently convinced that they cannot be hurtful: taking care to esteem every thing according to its value, and not, for instance, to estimate so highly the
the

the graces of the body, as to dislocate those of children, or put them to the torture to procure them : or being so fond of Latin as to make them sick, or to render them stupid, by obstinately persisting to make them learn it from their most tender infancy, against their inclinations and dispositions.

A work that presents in one single point of view the most essential branches of this knowledge, and forms them into a body of precepts, must be the more useful, as it is wanted both for the advantage of physicians and of society. The different branches themselves of this part of the art of medicine, have been but superficially treated ; and I do not know any of them, except that which relates to the birth of children, that has been treated at large, and by a sufficient number of able artists. We have scarcely a single precept on the diet of children well established by a discussion of the advantages and inconveniences of the received practice. All that has been written on the choice of nurses, and the nourishment of children, is hardly any thing more than a collection of prejudices. There is not any treatise truly medicinal on this subject. The poem of Scevola de St. Martha, and the beginning of Mr. Locke's thoughts on education, cannot be regarded as sufficient authorities.

As to the disorders of children, we have only Harris's treatise on some of their acute diseases, (a work that is very short, and executed with little care) the treatises of Leonillus Faventinus, Kufnerus, Austrius, Omnibonus Ferrarius, Hucherus Bellovacus, Ranchin, Primerosius, Hoferus, Cekijs, Strobelgerus, Wedelius, &c. some of which give a very imperfect idea of the diseases of children, and the greatest number are only filled with a heap of useless recipes: in short, the *Pædoiatreia practica* of Zuinger, and Andry's orthopedia, for external and chronical diseases. What is contained in treatises on the practical part of medicine, as in the works of Hippocrates and his commentators, Galen, Hollier, &c. those of Sennert, Mercurialis, Mercatus, Riviere, Etmuller, Claudinus, and Dolæus, do not appear to be particular enough, and to be undertaken with sufficient design. Hoffman's dissertation is only an incomplete assemblage of general observations that are but little interesting and but little instructive. And what is to be found on the diseases of infants in the aphorisms of Boerhaave, is so vague and short, that it is impossible to make the least practical use of it.

I have therefore undertaken to unite or assemble in this work, the useful precepts already known, to add the rules that seemed
to

to me to be wanting, to expose the customs evidently founded on idle or dangerous prejudices, and to raise at least doubts with respect to practices, whose use or danger is not sufficiently determined. I do not flatter myself with the hopes of having completed this subject, in an essay so short as this *. I shall have done enough if I have roused the attention of physicians to this essential part of their office; if I have in some measure removed the dangerous security of parents, in regard to the medicinal education of their children; if I have disabused some of them, and removed the idea they and the common directors of the health of children have entertained of their sufficiency in this respect; and, in a word, if I have led people to think that the authority of custom ought to be reckoned for nothing, and that consequently it is highly reasonable to examine every important point that is only built on this authority. The greatest difficulty is over, when, in so enlightened an age as this, we begin to doubt; since the choice of what is best

* Conditum enim illud opusculum, ut, auditis doctorum sententiis, idipsum accuratiùs recoquamus, elaboremus, perpoliamus. Sic Apelles post tabulam latitans, acceptis spectatorum judiciis, mirabilem illam Veneris speciem perfecit. Sic scientiarum & artium documenta, doctorum & artificum dissidiis, semper creverunt. *Hucherus Belloracus universitat medicinæ Monspel. Cancellarius, de morbis infant. in præfat.*

is almost a necessary consequence of a strict philosophical examination, which is the only way to arrive at truth. Objects of inquiry may, however, for a long time remain neglected, especially when they have nothing to recommend them but their importance, when they are but little curious, and are placed, like this, out of the limits of the exact and positive sciences, and depend neither on calculations, on a chemical analysis, on anatomy, nor on the number and division of body.

But though this work is not susceptible of these advantages, we could not avoid undertaking it, from the use it may be of to society. The study of the practical part of physic will always be the most interesting subject in nature, and the most worthy of the application of men of learning. In vain do people advance this groundless opinion, that medicinal knowledge is a science merely conjectural: they need only to read the works of the masters of the art, and they will be easily convinced that medicine has its principles and laws. In vain do they, to exclude us from the part treated of in this work, commonly persuade themselves that the medicinal education of children, and their diseases, hardly ever require the assistance of physicians, and that nature, received customs, and general recipes are here sufficient: the particulars we

b

are

are going to enter upon will prove the falsity of this generally received opinion. It will be seen what are the advantages which the medicinal education of children derives from medicine, and how much the diseases of infancy require judgment and experience.

First, The time of pregnancy in women deserves peculiar attention. The loss of appetite, the bloatedness and redness of the skin, which they experience in the first months, ought not to be removed by the assistance of the medicines which people of but small judgment too often prescribe. These symptoms which arise from the pressure of the foetus against the matrix, commonly remove of themselves, or are dispersed by a proper diet. It would be dangerous both for the mother and the infant was she to follow the general received opinion, which permits her to eat all kinds of aliment, and that at the most irregular hours. It is the business of the physician alone to determine the kind of nourishment that will best agree with a woman with child; to regulate the order of her meals; the just mean she ought to observe between too much and too little exercise; her abode in the city or in the country; and, in short, the moderation she ought to preserve in the indulgence of her passions.

Second-

Secondly, The time of delivery, which temperance of body and mind, and the moderate exercise of pregnant women, generally render happy, is not so easy to determine as is generally imagined. It happens at seven, eight and nine months. Those signs of its approach on which people commonly depend, and believe to be most certain, are often equivocal. We ought to have a perfect knowledge of the situation of the parts, their relation and distinct offices, in order to distinguish the real labour-pains from those that are false; to remedy the fatal consequences that may arise from falls and other accidents, and the diseases that happen to pregnant women. The delivery, 'tis true, is more commonly the work of nature than of art, and ought to be considered as an excretion, to which the matrix insensibly disposes itself, and which it discharges with success, when no methods are taken capable of stopping it. But when the weakness of the constitution of certain pregnant women, the disposition of the orifice of the matrix, the situation or size of the infant, render the delivery difficult, can we sufficiently blame the imprudence of the midwives and gentlemen of that profession, who scarcely ever call for the assistance of physicians, who being guided by the knowledge of anatomy, the state of the pulse and the other symptoms

that are more familiar to them, are the only persons capable of giving directions, and making known the manual operations and remedies most proper to promote the delivery, and of giving the most certain rules for the extraction of the placenta, for tying the navel-string, and preventing any fatal consequences.

Thirdly, People know that new-born infants are subject to a kind of erysipelas, to pain, weakness and suffocations ; but have they a reasonable suspicion of the cause of these disorders ? Ought we to be alarmed to remove them, to leave nature to act, or to assist the infant by promoting the evacuation of the meconium ? What is the most proper purgative for this purpose ? and, at what time ought it to be used ? It is customary to swathe an infant a little after its birth, and midwives and nurses have general notions on the practice and dangers that attend this operation : but, do they know that the head ought to be placed directly over the neck, without inclining to either side ; that the ears ought never to be too closely bound ; that the application of the roller in swathing should be so contrived as to form the extension of the spine of the back, which was bent forwards all the time the mother was great with child ; that a stay-band ill placed may give a bad bent to the vertebræ of the neck ; that the articulation

culatation of the femur is sometimes disordered by the pernicious practice of too closely binding the inferior extremities against each other; that most of the fevers, coughs, and suffocations of children are caused by confining the breast by the too violent compression of the rollers, &c. that we ought to treat with precaution the first sensations of children, and to take care not to expose them to broad day-light, to noise and strong smells.

Fourthly, That infants are more inclined to sleep than adults. It is to be presumed, that their soft and moist constitution disposes them to this function, which rests them after the fatigues they have suffered in their birth, and facilitates the new circulation of their humours, and the unfolding of their ideas. The crying, the terrors and starting of children during their sleep, being hardly ever attended with fatal consequences, we cannot sufficiently exclaim against the inutility and danger of narcotics given to remove these symptoms. Scarce is the infant awaked from his first sleep than he sucks his fingers, and calls for the breast by signs and by crying. But it is not enough to use him by degrees to seize the nipple, care must also be taken of the bridle of the tongue, to see whether there be any disorder in its conformation; but it must not be cut (notwithstanding the

practice of midwives who perform this operation indifferently on all children) except when it extends to the end of the tongue, and hinders his sucking. In fine, of all the assistances proper to appease the crying of children, in which it is essentially necessary not to confound the cause, which may proceed from the too lively impression of exterior objects, the confinement of being swathed, the want of nourishment, the irritation of the meconium, &c. the motion of the cradle is the most efficacious, provided it be uniform and accompanied with a kind of song capable of hastening the approach of sleep.

As to the neatness of children, it cannot be sufficiently recommended, since it is extremely useful and even necessary to their health. They ought to be washed oftner than they commonly are, and that with wine and water, especially when the skin is a little inflamed and covered with scurf. We ought not to oppose (at least after they are one or two years of age) the inclination they discover for lying on the side. This position is more advantageous and commodious than that of being extended on the back, with the face turned upwards; the viscera of the lower belly and the breast then enjoy more freedom, and the skin of the greatest part of the body is less extended.

Fifthly,

Fifthly, As the growth of children is performed by the unfolding of their vessels, by the union of the organical molecules, or by the application of a nourishing lymph to their solids, they every day stand in need of a fresh supply of a certain quantity of proper aliments; and milk seems to have all the qualities that can be desired in their nourishment. It is at first serous, light, and fit to promote the evacuation of the meconium; it acquires a greater degree of consistence in proportion as the infant increases in strength. It is a chyle already formed. The example of all the rational and animal creation sufficiently prove the necessity and use of suckling. This cannot be disputed; but is it impossible to find a nourishment more perfect than milk, and more agreeable to the state of infancy? Ought we so far to respect the supposed laws of nature, as to deprive infants of aliments that would be evidently more salutary? Is it not of the last importance to examine whether infants ought to be nourished with milk; whether womens milk agrees with them better than that of animals; and if that of their own mothers is preferable to that of all others?

The inconveniences that attend the use of milk are sufficiently known; besides the necessity it lays people under of mixing it with other aliments, on account of its insufficiency,

sufficiency, which is but too commonly the case ; it produces dangerous diseases when it turns sour in the stomach, is very often altered by the excesses and passions of nurses, which communicate to the children whom they suckle their diseases and vicious inclinations. In short, the pretended advantages of milk do not compensate for the real inconveniences that are observed to flow from its use. These considerations ought to engage us to give the preference to the milk of animals, which are commonly more healthful than nurses, and are not subject like them to passions which destroy the goodness of their milk. We ought not even to prefer a mother to a foreign nurse, till we have maturely reflected on the good or bad health of each, on their age, their disposition, the number of the children they have brought forth, and of those they have suckled ; on the age and quality of their milk, on their living in a city or in the country, &c. But as the three generally received methods of giving milk to children, are frequently prejudicial, would not a kind of panada made with bread slightly boiled in wine or small beer, with honey or sugar, reduced to a mucilaginous consistence, and diluted in a sufficient quantity of water when we would give it for drink, be preferable to milk, or
any

any other aliment, in which milk is an ingredient ?

However, in spite of the force of those reasons that oppose the use of milk for children, and which confirm the advantages arising from that of the panada we have just proposed, we believe the assistance of experience to be still necessary. We would therefore desire that this last method may be practised by the country nurses entrusted with the foundling children, and permitted in communities that take upon them the trust of bringing up a certain number of infants ; and that they would determine in favour of that nourishment, if experiments carefully made, and often repeated, afford an entire certainty of its absolute efficacy and advantage over milk. But as such changes as are of use to society are seldom brought about till long after they are discovered, while we are waiting for some happy circumstance that may hasten the success of that we have proposed, we prescribe a regimen of life proper for nurses and children. This is a right that only belongs to physicians.

Sixthly, The time of the dentition of children, is commonly attended with such dreadful symptoms, as a fever, looseness, cough, convulsive motions, &c. that it is the greatest rashness to trust this work to nature alone, or to the general practices
9 observed

observed by the public. Independently of the local assistances, which are sometimes necessary, and which ought never to be applied without the advice of judicious dentists and surgeons ; the direction of the humours of children to the head observed by Stahl, which increases the sensibility of the periosteum, through which the teeth endeavour to penetrate, demands the entire attention of the physician. A diversion of these humours, occasioned by medicines of small activity, performed at a wrong time, or in some of the viscera, and, in a word, directed in an ignorant manner, will either become mortal, or produce inconveniences that will remain in a more advanced age. A suitable diet for the nurses and children, internal remedies, or proper topics prudently applied, will remove the dangers that attend dentition, and facilitate the cutting of the teeth, their regularity, solidity, and the good state of the gums.

Seventhly, The time of weaning requires no less attention than the time of dentition, which prepares the way for it. It is only on account of this change, the maxillary bones grow strong. We cannot be too apprehensive of the revolutions commonly occasioned by the privation of milk, and the aliments substituted in its place. The stomach is never without danger exposed

posed to the task of preparing a new kind of nourishment. And it is only by giving it aliments proportioned to its degree of force and activity, and to the nature and consistence of those it has been accustomed to receive, that we can prevent the diseases that may proceed from weaning. It cannot be denied that man has digestive powers capable of separating the parts of all kinds of aliments ; but it is equally certain that an aliment too heavy and difficult of digestion, thrown into a stomach for a long time accustomed to digest only milk, or in other words, a chyle almost entirely formed, must create a considerable disorder in the digestive organs, and in all the functions of the animal œconomy that depend on them.

Moreover, we ought not to be alarmed at the leanness observable in children newly weaned, when care is taken to give them nothing but broth, rice, water gruel, pease soup, farinaceous meats, fresh butter, wholesome fruit, and, in a word, aliments of a good juice, and in a moderate quantity ; and when there appears no sign of a slow fever. This leanness which is the effect of the discharge of the milky juices which the vessels lately contained, is rather salutary than prejudicial. But it soon disappears when it is not kept up by any particular disorder of the viscera. Children
soon

soon resume a more perfect state of plumpness, which commonly lasts till the time of puberty, provided that great care be taken to give them only a sufficient quantity of good nourishment, at regular hours, and at a sufficient distance of time from each other ; that the natural order of their excretions be not disturbed ; that they breathe a fresh air, frequently changed ; that their sleep be not disturbed ; that their exercises be proportioned to their degree of strength, and always taken with moderation ; and, in short, that the affections of their minds be properly directed.

Eighthly, Scarce are infants arrived at the age of puberty, when they experience very surprizing revolutions in the parts of generation. This crisis of infancy is frequently accompanied with bleeding at the nose, pains in the groin, a cough, and spitting of blood. The menses begin to shew themselves in girls, and boys are surprized to see a milky liquor proceed from the parts of generation, which characterizes the beginning of virility. The voices of both grow stronger ; the breasts of girls swell, and sometimes even those of boys grow larger, and give them pain ; these last, besides the appearance of the beard, which is peculiar to them, are more subject than girls to a state of melancholy and sadness, and solitude becomes their delight ;
nature

nature then fills them with desires that frequently lead them to discoveries as contrary to their health, as to the dictates of morality.

These are the dangers and rules of the medicinal education of children. The diseases of that age require the greatest knowledge and circumspection. Seldom do infants arrive at the age of puberty without feeling some indisposition that requires the assistance of medicine. New born infants, as Hippocrates observes*, are subject to frequent vomitings, to small ulcers in the mouth, and to obstinate coughs; to watchfulness, an inflammation of the navel, &c. A fever, looseness, convulsive motions, and sharp pains in the gums seldom fail to accompany the time of dentition. Scarce have they attained the age of three or four years, when they are in danger of a swelling of

* Per æstates talia accidunt; parvis quidem & recens natis puerulis, oris ulcera, vomitiones, tusses, vigiliæ, umbilici inflammationes, aurium humiditates. *Lib. III. aphorism. 24.*

Ad dentitionem verò progressis, mordaces gingivarum prurigines, febres, convulsiones, alvi profluvia, maximè caninæ edunt, præsertim in pueris qui crassissimi sunt & alvos duras habent. *Lib. III. aphor. 25.*

Ipsis verò grandiusculis tonsillarum inflammationes, vertebræ quæ est in occipite ad interiora trusiones, asthmata, calculi, lumbrici teretes, verrucæ penfiles, satyriasmî, stranguriæ, strumæ & alia tubercula, præcipuè verò ante dicta. *Lib. III. aph. 26.*

Grandioribus adhuc & jam ad pubertatem accedentibus; superiorum morborum multi, febres diuturnæ, & magis sanguinis è naribus profluvia. *Lib. III. aph. 27.*

the belly, worms, disorders in the throat, the epilepsy, measles, small pox, rickets, scrophulous disorders, &c. They are at length exposed, in the age of puberty, to spitting of blood, pains in the head, bleeding at the nose, intermittent fevers, a marasmus, &c. Ought we not to conclude from all the above observations, that there is great inhumanity in leaving children when sick to the care of nature alone, or to the vague and uncertain treatment they meet with from women and empyrics? But it must be confessed, that most of the precepts or counsels spread through this work, are only suited to children whose parents are rich, or in easy circumstances, and that it is difficult for the common people to put them in practice.

Nothing more remains but to inform the public, that this essay is the fruit of a particular study of the medicinal education of children, and a consistent application to the treatment of the diseases of that age*.

The different divisions of the time and diseases of infancy, in most of the authors who have wrote on this subject, have ap-

* In the year 1746, there raged at Agde, a maritime town of Languedoc, an epidemic disease that was almost peculiar to children.

There raged another at Fontainebleau in 1747, by which almost all the children were seized. See the description I have given of it in the French Mercure for the month of October in the same year.

peared to me to have too little reality. These are what I have established in this work, which I have divided into three books.

The first book treats of whatever relates to the medicinal education of an infant, from its formation or conception; but principally from its birth to the time of weaning.

The second is appropriated to the other part of infancy, which extends from the weaning to the age of puberty.

And the third treats of the diseases peculiar to infants, and of the particular symptoms that shew themselves in children; in certain diseases that may be considered as common to all ages.

T H E
C O N T E N T S.

B O O K I.

C H A P. I.

OF the child in its mother's womb. Page 1

C H A P. II.

Of the birth of the infant. 19

C H A P. III.

Of the state of the organs and functions of the new-born infant, and the evacuation of the meconium. 32

C H A P. IV.

Of the sleep of the infant; the examination of the bridle of the tongue; the manner in which he ought to be rocked, cleaned, and put to bed; and of the time when he ought to take his first aliments. 57

C H A P. V.

Of the food of the infant. 69

C H A P. VI.

Of the secretion of the saliva, itching of the gums, corals, dentition, &c. 115

C O N T E N T S.

B O O K II.

C H A P. I.

Some observations on the difference between the granivorous animals, the quadrupeds who eat grafs, and carnivorous animals, in relation to the nourishment destined for them during infancy. The method taken by a nurse in weaning an infant, compared with that which nature points out to a cow. Chewing the food of infants, censured. Page 127

C H A P. II.

Of the diet of infants who are weaned, or the manner of governing them, while in health, so far as relates to the six non-naturals. 136

Of food. 139

On the secretions. 146

Of air. 148

Of sleep. 152

Of the exercises and plays of children. 157

On the affections of the soul. 162

C H A P. III.

On the drefs of children. 166

C H A P. IV.

Of the difference of sexes, and of puberty. 177

C H A P. V.

Of the fall of the first teeth ; the management of the hair, nails, &c. 192

B O O K III.

Of the diseases of children. 208

C H A P. I.

Of acute diseases. 209

SECT. I. Of convulsions. ibid.

CONTENTS.

SECT. II. Of the cough.	Page 218
SECT. III. Of vomiting.	220
SECT. IV. Of a looseness.	221
SECT. V. Of worms.	223
SECT. VI. Of swellings.	238
SECT. VII. Of the small-pox and measles.	242

CHAP. II.

Of the external diseases of children.	251
SECT. I. Of the crusta lactea, and scald head.	ibid.
SECT. II. Of the diseases of the ears, eyes, nose, and other parts of the face.	256
SECT. III. Of the apthæ or thrush.	258
SECT. IV. Of the zona ignea, or shingles, scabs on the navel, and the rest of the body.	259
SECT. V. Of ruptures.	261
SECT. VI. Of the hæmorrhoides, and the rupture of the fundament.	263
SECT. VII. Of chops, chilblains, and burns	267

CHAP. III.

Of the organical diseases of children.	270
SECT. I. Of the diseases of the head.	ibid.
SECT. II. Of the diseases of the eyes and eyelids.	275
SECT. III. Of the hare-lip, and other deformities of the face	276
SECT. IV. Of the diseases of the trunk.	279
SECT. V. Of the diseases of the superior extremities.	284
SECT. VI. Of the diseases of the inferior extremities.	286

C O N T E N T S.

C H A P. IV.

Of the chronical diseases of children. Page 292

SECT. I. Of the disposition of children to the stone in the kidneys and bladder. 293

SECT. II. Of the scrophula, or king's-evil. 296

SECT. III. Of the rickets. 305

C H A P. V.

Of the extraordinary and uncommon diseases of infancy. 313

SECT. I. Of umbilical worms. 304

SECT. II. Of small cutaneous worms. 317

SECT. III. Of the hair growing between the skin and flesh. 319

SECT. IV. Of the disorders of the tongue, in relation to speech. 321

SECT. V. On the stammering, or a difficulty in pronouncing easily and distinctly certain words and syllables. 331

SECT. VI. Of the kind of convulsion called chorea, or St. Vitus's dance. 337

SECT. VII. Of the hernia gutturis, or wen in the neck 341

SECT. VIII. Of warts. 347

SECT. IX. Of the Syrian disease, or disease of the solstices. 350

SECT. X. Of the running of the ears. 352

SECT. XI. Of frequent yawning. 354

SECT. XII. Of the hydrocephalus. 355

SECT. XIII. On vermin ingendering in the head. 368

SECT. XIV. Of the leanness of children. ib.



A N
E S S A Y
O N T H E
M E D I C I N A L E D U C A T I O N
O F
C H I L D R E N.

B O O K I.

C H A P. I.

Of the child in its mother's womb.



WE cannot, without a mixture of fear and admiration, recal to mind the dangers we run through before our birth, which are as numerous as the states through which we pass.

Our bodies are an assemblage of an infinite number of particles that have been for a long time dispersed throughout many other beings ; which particles, after having passed from one vegetable, and one animal to another, have at length been united in the bodies of our parents.

B

They

They then take a new form, and receive a particular impresson from each part of the bodies of the father and mother. Their eyes, their teeth, their lungs, their heart, and their other viscera change them in a remarkable manner, and they acquire by their abode in each of these parts, modifications that render them truly feminal, and capable of becoming the first rudiments of a new animal. At last they are elaborated a-new in the reservoir provided by nature, and there they remain till they are cast into the matrix, where, from being separate as before, they approach each other, unite, and each possesses the place designed for it; in a word, the semen of the father and mother may be considered as a mass formed of the superfluity of the nutrition of their bodies; these two masses unite themselves by an admirable mechanism, and compose one, entirely like a seed which a sower casts into land properly prepared.

The matrix, which is the field in which our bodies are sown, is conveniently open to receive the seminal liquors, of the father and mother: That of the father runs through immense spaces, and is in danger of being lost in the most necessary and critical moment: That of the mother is still more exposed; it is trusted to the falopian tubes which seize it in the ovarium, and carry it from thence to the matrix.

Such is the mechanism of generation that appears the most probable and most conformable to the experiments made by the greatest of our modern philosophers, who have destroyed the sentiments of those of the last century; some of whom imagined, that there were small eggs float-

floating in the air, while others believed that the whole human race were included in the ovarium of the first woman; and, in short, many of them were persuaded, that little men swarm in the seed of the father, in the form of little eels, which presented themselves in crouds to enter the egg of the mother, and fought most furiously, till the conqueror possessed the place prepared for him. Life, which was the reward of the victorious, was given to the strongest; and all the others died in the combat.

From all these opinions, which have no other foundation than the imagination of different authors, we shall adopt the first, which appears to us to be the most probable, and which, in reality, is the sentiment of Hippocrates, and of the antient philosophers, who have been as fruitful, and as happy in their hypotheses as the moderns.

Let us now pass to the changes these particles undergo, after their being shut up in the matrix, which now forms one body, by means of the aqueous vehicle, which begins by uniting them in the same manner as different liquors become one by fermentation. The particles of the seed have each a form which renders it capable of a certain union with others, of separating from those that are unsuitable, of a certain degree of motion, &c. In these two united seeds, each molecula prepares to take its place, as in a liquor that ferments; where the salts contained in each seek each other, and meet during the effervescence; and, why may not the materials of an animal body be endued with the same property?

It is by this virtue of affinity, that the different parts of the semen of the father and mother join together to compose a whole, which depends on both, and which resembles neither : A salt composed of an acid and alkali, resembles neither of these bodies; at least, if one of them is not predominant. May it not be by there being a somewhat greater quantity of the one semen than of the other, that the children resemble a father or a mother ? May not the foetus, which is formed in the womb, by the mixture of two seeds, be formed of two intire bodies, the one of which belongs to the father, and the other to the mother ? This idea raises a presumption, that our bodies are double, and that we are composed of two complete bodies artfully joined to each other. The interior symetry of our organs, the arrangement of the exterior parts, and the phænomena of many diseases, seem to confirm this opinion.*

The mixture of two seminal liquors is as necessary to form an infant, as the mixture of an acid and alkali is to make a neutral salt. From thence, perhaps, it proceeds, that each individual, whether male or female, does not wholly produce its like. M. de Buffon imagines, that the reason of this is, that the establishment of the organical moleculess, which are to form a

* Monsters are doubtless formed only when the laws of affinity are not exactly observed in the application of the organical moleculess, or only when there is a superabundance of these moleculess; and this affinity takes place in extraordinary cases. Monsters, says M. Buffon, are made with some degree of symetry; the children, for example, who have six fingers on the right hand, have usually the same number on the left.

foetus, cannot be framed of themselves in the individual who furnishes them, on account of the circulation of the semen and the continual return of this liquor in the body of the animal, and from the continual action of new organical moleculæ entering the testicles and the ovaria. When the seminal liquors are once mixed, they fix themselves in the matrix, from there being a greater analogy between them, than they have with the parts of the body by which they are produced. But as the male alone cannot produce a foetus, for want of organs necessary to contain and nourish it, so the woman, who has this advantage over him, cannot, on this account, conceive without his assistance. While the organical moleculæ are only of one species, they being equally active, and equally animated, their action is not followed by any effect, because it is without reaction, the reunion of these organical moleculæ, and their fixity, which are absolutely necessary for the formation of the foetus, can never take place but when the seminal liquors contain, in a proper matrix, dissimilar active parts which proceed from those that constitute the sex in the man and woman, which are the only ones that can produce a different effect, react against the others, stop their motion, and serve as a basis or support to their action.

But, if the organical moleculæ of the parts of generation in the man and woman, continues this ingenious author, determine the sex of the infant, we may conclude, that the male, for example, who derives his sex from his father alone, takes from his mother only what is necessary to form the rest of his body.

This consequence does not appear to me to be intirely just. May not the semen of the father be in greater abundance, and contain a larger quantity of organical moleculæ than that of the mother, and after its having determined the sex of the infant, farther concur to the formation of the rest of his body? As soon as the organical moleculæ of the parts of generation, which serve as a basis and support to the others, have determined the sex of the infant, I imagine that the active parts of the genitals of the man or woman that are found in a less quantity, and that have contributed to the reaction necessary to fix all the others, lose afterwards their virtue, and become confounded with those that are going to form each the organ proper for itself.

But it is time to have done with mere probabilities, and adhere to facts. These prove, that the parts of our bodies are moistened in the aqueous or mucous substance, which constitutes the main part of the semen; that they therein vegetate, like plants, in the bosom of the earth; that they there turn themselves according to the greater or less resistance, by which this matter opposes them. From whence doubtless, proceeds that proper assemblage of materials which form a symetrical whole, and which, in a little time, becomes an organized body.*

* The chicken is seen in an egg before it is fat upon; it exists entire in the middle of the treddle, at the moment when it is ejected out of the body of the hen, and the heat communicated to it by incubation, only serves to unfold its parts, by putting the fluids in motion. BUFFON.

Three or four days after conception, we are informed by anatomists, that there is found in the womb a kind of egg, or oval ball, six lines in its greatest diameter, and four in its least; over which spreads a net-work of small fibres, which covers half of its surface. In three or four days more the first lineaments of the foetus may be distinguished, the spinal marrow drawn out in length, the head, the trunk, a branch proceeding from the middle of the foetus, which is to form the naval-string; the nose, or a small prominent thread, two small black points, which indicate the places for the eyes, small protuberances, or the first beginnings of the arms and legs. The length of the whole body is then about five or six lines.

At the end of six weeks, the motion of the heart is perceived, which was certainly formed immediately after the conception, but could not be distinguished before, either because it was concealed in the breast, and covered by the lungs, the pleura, &c. or because its pulsation is till this time imperceptible. It is from this, I imagine, that all the other parts of the body proceed. It is like the bulbous root of a plant, and vegetates in the matrix, which is, with some foundation, compared to a well cultivated soil: its vegetation serves, perhaps, to unfold all the organical moleculars that form the body, and that are arranged according to the laws of the most exact affinity. This unfolding is not completed till twenty-five or thirty years of age; the body, or the plant, maintains its vigour till the age of forty-five; it then receives very sensible alterations, and de-

cays by little and little till it reaches the moment of decrepitude and death.

At the end of forty days all the parts of a male foetus are apparent; but those of a female are a little later. At two months the ossification of the foetus begins; a month after, its motions are sensibly felt by the mother; it is then about three inches in length, and weighs about three ounces. At four months and a half after conception, it is six or seven inches in length, and all the parts of the body are at this age so greatly augmented, as to be perfectly distinguished the one from the other. The membranes in which it is contained grow at first faster than the foetus, but after a certain time, towards the fourth month, for example, the foetus grows faster in proportion than its coverings. Before the end of the third month, the head is bent forward*: the chin rests on the breast, the knees are raised, the legs are folded behind, and frequently crossed; the toes

* Mr. Buffon thinks with Harvey, that the foetus assumes this position only from its being more favourable to sleep. But the foetus sleeps before the third month, which is the time when it is supposed to begin to bend its members. It may therefore be presumed, that the body bends insensibly from the moment of its formation, till the time of delivery. Can it indeed be supposed that at the age of three months it can without danger accustom itself to so uneasy an attitude? would not this entirely disturb its circulation? the largeness of the head of the foetus and its weight, which is at first more considerable, in proportion to the body, than in a more advanced age, are according to all appearance, the cause of this bending attitude. This position becomes still necessary from another reason; the infant has not room to stretch itself out in the matrix, when it is four or five months old, and it is obliged to yield to the compression of this oval viscus.

turned

turned upwards against the thighs, with the heels very near to each other; the arms are let down, and bent over the breast; sometimes one of the hands and sometimes both, touch the face; these are sometimes shut, and sometimes also the arms hang down by the sides of the body.

The unfolding or growth of the placenta, the amnios, and the chorion, is as difficult to conceive as that of the foetus. They all float together in the matrix, during the beginning of their increase, which, according to Mr. Buffon, they cannot do, without imbibing the milky fluid contained in the matrix. The placenta seems to be the first that imbibes this nourishment, which it converts into blood, and carries by its veins to the foetus: the liquor of the amnios appears to be only this same milky liquor depurated. For my part, I imagine that this liquor in which the foetus and its membranes swim, immediately penetrates them, and thus furnishes them with the matter necessary to their nutrition and growth. It is imagined, perhaps with very little foundation, that this is not the case, at the latter end of a pregnancy, and that the foetus then takes in its nourishment at the mouth; however, though there is found in the stomach a liquor like that contained in the amnios, urine in the bladder, and meconium in the intestines, yet we may justly scruple giving credit to this supposition.

There have been many disputes about the precise moment in which the soul becomes united to the body; but so difficult a question cannot be decided by vague and uncertain conjectures;

jectures: it is however natural to presume, that as the soul does not abandon the body till it has lost all its former capacity for motion, so it cannot unite itself to it, till the seminal parts are entirely disposed to form an organical substance capable of the functions which properly constitute life.

Some philosophers have maintained that the soul might possibly contribute to the form and disposition which the body acquires in the matrix. I do not believe that it produces the arrangement of its parts; but I am well convinced that its presence, has a great influence on the modifications assumed by the body already sketched out, and that the organs are moulded by the ideas of the soul. Why may not what we observe in adults happen in the foetus? If the passions, when too strong, are capable of disfiguring the most robust body, what an impression must the soul make on those that are tender and delicate? how many kinds of sensations may we experience in our mother's womb, and yet lose the remembrance of them? it is doubtless by these that the soul acts on the body, and disposes it to fulfil the offices to which it is destined.

However this be, we begin by being an aquatic animal, a real fish; we swim in a liquor that serves us for aliment, that supports, that preserves us from all the accidents that might disturb our growth. Thus the small embryos of frogs are sustained by a glutinous substance which preserves them from the impression of the water, in which both the embryo and the glutinous matter with which it is surrounded swims. The liquor which sustains
the

the foetus beginning to thicken in its exterior surface, forms a kind of membrane, a bag, or an egg that encloses it, shelters it from all the disturbances it might meet with, and becomes changed, for its use, into a kind of reservoir, in which it is suspended, and to all appearance nourished, in the manner above described.

This membrane, which is capable of a certain degree of resistance, floats irregularly for some time in the cavity of the matrix. Many observations prove the dangers to which the foetus is at that time exposed. The falopian tubes, by being too much dilated, may cast it into the belly. Thus it has been found sticking to the intestines, where it has grown to a certain size, and one of the falopian tubes has even retained it within its cavity.

Without endeavouring to explain the cause of these several accidents, we shall satisfy ourselves with observing that they are very rare; the orifices of the falopian tubes in the matrix are so small, that there is little danger on this side. The foetus may find a more easy passage through the inferior orifice of the matrix, in spite of the care which nature has taken to furnish it with small glands, that secrete a kind of bird-lime or mastic, which shuts it up with greater or less exactness. Through this orifice the foetus has been frequently drawn by the flowing of the menses; it has also been dislodged by the very act by which it was produced; or by any other extraordinary shock, as was the case with that dancer who, in the presence of Hippocrates, let fall a kind of egg; which must have given him great astonishment, notwithstanding the silence he observes in this respect,

respect, and which obliged him to forbid pregnant women to use dancing, and violent exercises.

A physician is obliged to follow the example of this great man, and to represent to imprudent mothers the danger they run of a miscarriage, from a bad regimen, from sudden shocks and irregular motions, and from their incontinence, and caprices. We need only to consider the regularity observed by female animals, with respect to this point, as one of the laws of nature, in order to conceive how much tranquility, repose and moderation, are in all respects necessary to mothers who are convinced of their being pregnant. There are none amongst the former whose motions are not less impetuous than before, and their precautions prove the value they set on the depositum which nature has intrusted to their care. If we examine the mother amongst the bees, and observe her cares, her watchfulness, her sober air, her grave and regular step, which the historian of the academy of sciences has so well described; we shall be more convinced by this example, than by all the reasonings that can be alledged. A woman ought not however to imitate those too careful mothers who deliver themselves up, during the whole time of their pregnancy, to a too inactive life, which rather partakes of laziness than of precaution. We ought still more to blame the conduct of pregnant women who spend the night in play, who use no exercise in the day, who are agitated by the most violent passions, who drink spirituous liquors, and eat indifferently, and to excess, all kinds of food. The inaction that
accom-

accompanies such a conduct, almost always becomes the source of a multitude of disorders, both to them and their infants. It is the business of the physician to proportion the manner in which the mother lives to the state of her pregnancy, and her constitution. Regard ought also to be paid to the necessities of the foetus, which forms one body, if I may so express myself, with its mother, in such a manner as that, in their respective motions and functions, the one depends on the other.

Every body agree that country women, who are usually sober, who observe a moderate exercise, who are deprived of all the conveniencies that inspire a love of pleasure, who have no notion of the useless cares which the inhabitants of towns have so greatly multiplied, are seldomer indisposed; all mothers, therefore, ought to follow an example so natural and so advantageous. The foetus they carry in their wombs ought to be considered as a fruit that grows in all climates and seasons. We plainly resemble those plants of the fields that delight not in a rich and well cultivated soil; and we always preserve the stamp of our first original. The foetuses of country peasants more nearly resemble it, than those of the women who live in cities. We ought, therefore, to let all children grow in their natural soil, I mean in the country; or, at least, to repair, as much as possible, the loss of those advantages they would derive from it. The fondness people shew for living in the country, the strength of the inhabitants, the health which the country air restores to those who are on their recovery, and to persons labouring under most diseases, sufficiently

ciently prove the advantage of the advice we give. It were, therefore, to be wished, that all women could dwell in the country till after their delivery ; for, by this means, many mothers, and a prodigious number of children would be saved ; in short, sobriety and moderate exercise are every where of advantage, and equally so in the country and in cities ; and the observation of these precepts is as necessary to health, and a happy delivery, as a luxurious indolence, watchings, aliments composed with too much art, immoderate sleep, &c. are commonly contrary and pernicious to it.

But let us return to the foetus which we have left in the womb. The hand that directs the bee to place her egg in a constant and regular manner, at the bottom of her little cell, and to fix it in an angle fit to receive it, places the foetus at the bottom of the matrix, where it fixes itself by little and little, and adheres to it more and more till the time of delivery.

The egg thus fixed to the matrix is a kind of parasitical plant, which seeks its nourishment on the trunk by which it is supported. Hitherto the little foetus was a fish, that floated in the liquor contained in the cavity of the matrix ; but it is now changed into a plant ; like those shells which adhere to the rocks by fleshy fibres, it strikes its roots into the body of the matrix. The point of reunion is sensible ; it encreases, and gains strength a little faster than all the other membranes. This is the bulb of the plant, the place from whence it sends out all its roots, and where they enter more or less deeply into the texture of the matrix : sometimes these roots attach themselves to

to cells full of blood, and sometimes they stop at those which only contain lymphatic juices. This is, at least, what appears to be the result of the experiments of many anatomists, and perhaps it is one of the causes of that difference of temperament which characterizes the man when grown up to maturity.

The foetus grows and increases by means of the juice which the matrix begins to yield ; which it now begins to dilate and press upon ; from which pressure and dilatation arise the changes which attend the mother in the first months of her pregnancy ; these are a disorder in the motions of the viscera, and of the oscillations of the matrix : the suppression of the menses, and even of the fluxes of a former delivery, ought also to be considered as a consequence of the irritation of this viscus ; for, not only do the active parts of the seed of the man and woman enter the matrix through its orifice, but they also insinuate themselves into its pores, penetrate its substance, and occasion an interior swelling, like that which the sting of a bee produces in the lip of an infant.* We ought not therefore to be surprized at seeing so many phænomena attend this condition, as loss of appetite, swellings, a flushing in the face, pains in the joints, vomiting, &c. These give but little disturbance to an able and experienced physician, since they are the necessary consequences of the irritation and compression of the matrix, of the work of nutrition, and the incubation of the foetus. Instead of trying a thousand pretended remedies for these slight

* See L'Histoire naturelle de M. de Buffon.

inconveniencies, he will wait till they destroy themselves ; a suitable diet, and sometimes bleeding in the arm, if the contraction of the skin requires it, will be sufficient to remove these disorders.

Though the foetus adheres to the matrix, (according to the observations of modern physicians) only by small nipples on the exterior parts of its membranes ; though there is no communication of blood between the mother and the foetus ; and though it is in many respects as independent of the mother who carries it, as the egg is of the hen that broods over it ; it has been believed, that every thing that affects the mother, also affects the foetus, and that the impressions made on the one, act on the brain of the other ; and people have attributed to this imaginary influence, the resemblances, the deformities, and more especially the marks seen on the skin. The more lively passions of mothers, say they, are suddenly communicated to the infant ; and this is the origin of all the remarkable marks found on their bodies at the time of their birth.

It must be confessed, that the power of these impressions has been extended too far, and that those who have endeavoured to destroy the popular errors, which in this respect have been propagated, have done an important service to society : But, it must also be confessed, that it is difficult entirely to reject the proofs that might be drawn from certain remarkable facts, in favour of the action of the different passions of the mother on the foetus. If the matrix, when indisposed, irritated or disturbed in its functions, evidently changes the colour of the eyes,

eyes, and produces a disorder in the taste, and in the sensations and ideas of a girl in the green sickness, why may not the sensations and ideas of a mother form more or less sensible impressions on the matrix, and on the infant that has one body with her own? The action of this viscera has been so little studied, it has been so little known, and its motions agree so little with the laws which some authors have imposed on it, in relation to its periodical evacuations, and all its other functions, that it is necessary to attend to new explications of these matters, before we either reject or admit the impressions made by a mother on her infant.

We shall satisfy ourselves with observing, that it has not been sufficiently considered, that in most of the cases in which it is believed that a strong sensation in the mother makes an impression on the foetus, the mother's sensation is occasioned by the motions of the foetus. I speak here of a violent longing for any particular kind of aliment, of any incommodious and disagreeable sensation, an itching in the skin, &c. From whence do these affections and desires proceed? Is it not probable, that all these passions arise in a woman with child, from the same cause as those in a girl who has the green sickness, who eats coals, chalk, &c. that they exist only because her whole body, in certain respects, depends on the matrix; and that this, particularly modified, has an effect on the different parts of the body that are connected with it? In a word, is not the matrix of a pregnant woman as much disordered as that of a girl who has the green sickness, suppressions, &c.

It is not therefore surprising that the foetus which has, for example, a disorder in the skin, should make certain motions that may affect the matrix ; and that this viscus should cause a certain impression upon the mother, that can only be explained by the laws of the sympathy of the nerves, or of the circulation ; from whence it follows, the mother feels a kind of tickling at that time in the part of her body correspondent to the part affected in the child, occasioned by that which the foetus at the same time feels*. I do not pretend that this explication will account for all the cases we are speaking of. But we shall at first observe, as a certain truth, that most of the facts related on these affairs, are either false or exaggerated. It is only necessary therefore, to examine, with more attention, the small number of those that may be considered as incontestable. Now, if this examination can be carried on without losing sight of the action of the matrix, and the changes it produces on all the parts of the body, it is at least as probable as the opinion generally received.

However this be, a physician ought to prevent all these accidents by the assistance drawn from diet, a moderate exercise, and a proper regimen, rather than by medicinal preparations. He ought not to satisfy himself with saying to a woman, during her pregnancy, You must not entertain fantastic ideas, a depraved taste, fancies contrary to your health, passions

* These marks on the skin, and these longings, are uncommon enough in the country ; because mothers, as well as their children, enjoy a better state of health during their pregnancy ; and the matrix, with all that depends upon it, are in a more perfect state, because they use more exercise, &c.

too violent, &c. he ought to carry his views farther, to destroy the physical cause of these inconveniencies, and, in a word, to remedy that disorder in the matrix, or of any other of the viscera by which it might be occasioned. Good nourishment, proper exercise, agreeable amusements, pleasing and equal sensations; but above all, good aliments and the country air will seldom fail to produce such a change. This we should have at least a right to presume, even though it was not authorized by experience, when we compare the strength, the good plight, and the health of pregnant women in the country, with the delicacy and leanness of most of those who dwell in cities.

C H A P. II.

Of the birth of the infant.

THE time for the separation of the mother and infant, is known by signs more certain than the number of days and months, to which many physicians have been too scrupulously attached. This separation usually happens at the end of the ninth month. However, incontestable observations have proved that it is performed at eight, which Hippocrates, through his attachment to the doctrine of numbers, thought very dangerous; but without mentioning those uncommon cases in which a foetus has been born in the sixth*, or in the

C 2

thir-

* In the year 1748, a woman who lived at Marseillan, a maritime town in the province of Languedoc in France, was delivered of a male infant, exactly six months after a former lying-in. The time of the menstrual discharge, which

thirteenth, and even the fourteenth month, (if we may repeat the testimony of many physicians, on which the legitimacy of children have been founded) it is known that this separation often happens in the seventh month. The physician being then informed that nature varies as much in this respect, as in the ripening of fruits, and unfolding the leaves of trees of the same species, will principally consult the other symptoms that appear in pregnant wo-

which is a very improper season for generation, being deducted and fixed only at a month, it is evident that her pregnancy lasted exactly five months. The infant was living, but it was as small and weak as an abortion of the same age, and could really be only considered as an abortion. It did not cast forth the least cry, nor did it appear even to breathe. Its eyes were shut; its members were absolutely flaccid and hanging down; in a word, it was only some little motion, and the heat it retained, that happily declared, that it was living. It was wrapped up in very fine linnen, and kept warm, and they endeavoured to make it swallow a few drops of warm milk, and succeeded. In a word, contrary to all appearance of success, the mother had so much tenderness and patience, as to make it subsist exactly in the same state in which we have represented it, for the space of four entire months, during which, it neither voided any excrement, made no other motions but what were scarce sensible, nor cast forth the least cry. In short, exactly at the end of these four months, it began to cry, to void its excrements, to move, to suck, and to grow in the same manner as children born at their full time, and at fifteen or sixteen months old, became stronger than other children of the same age. The milk diet with which it had been fed four months longer than other infants, instead of the liquor with which it would have been nourished in its mother's womb, had perhaps rendered it more robust. What is most singular in this case is, that the infant lived in the manner of a foetus, during the time it wanted to arrive at a state of perfect maturity.

men,

men, if he would decide with certainty the time of their delivery,

There is reason to fear a miscarriage till a woman is advanced to the seventh month of her pregnancy; and that a fever, a vomiting and looseness, pains in the bowels, a violent cough, and fluxes, either white or red, will appear. But none of these symptoms, nor no disease, when treated according to the rules of art, renders a miscarriage inevitable. We see women with child cured even in the eighth and ninth month of all distempers, without any flux, and consequently without any disposition approaching to a miscarriage. It is, however, sometimes necessary to procure it, as the physician is forced to have recourse to it, in order to save the mother. This is a resource which art, guided by nature, is capable of employing, in order to produce a happy crisis, in more than one disease incident to women with child.

The experience that informs us of many unexpected fluxes and cures, during the whole time of pregnancy, without any accident, ought to make us reject the opinion of those who consider every discharge in a woman with child, as a certain forerunner of a miscarriage, and who prepare, from a sign so equivocal, to deliver a woman before the true time is come. Their trials, their remedies, their examinations, become not only useless, but sometimes prejudicial; a mistaken care, a simple privation of free air and moderate exercise, a too rigid diet, are then more hurtful than favourable; but we shall not here treat of the diseases of pregnant women, which are commonly the most alarming, the most difficult, the most

complicated, and which consequently require all the attention of the greatest physicians. We only treat of the signs which indicate a delivery.

When once a pregnancy is arrived at the seventh month, we ought never to lose sight of the delivery; but all the pains in the bowels, and the other signs which deceive such midwives as have had but little experience, determine nothing in the opinion of an able physician. There are false as well as true labour-pains, which it is of importance not to confound. False pains are caused by a common cholic, and by a borborygmus, which are commonly the forerunners either of some evacuation or a fever, and are not at all fixed and regular. True labour-pains almost always begin towards the region of the reins, and are directed to the side of the matrix. They encrease, especially when the time of delivery is at hand, and come by paroxysms, and in the manner of waves; they precede the falling of the belly, or else follow it; they are attended with efforts, the labour of the body of the mother, of the matrix, and of the infant; for each contributes its part to this excretion.* In short, the visit of a midwife acquainted with the nature of these pains, when

* The pains of child birth proceed more from the separation of the placenta, than the dilatation of the orifice of the matrix. The whitish and viscous liquor which flows immediately before the delivery, and which approaches to the nature and consistence of that secreted by the nipples of the placenta, seem at least to prove it. These pains are also occasioned by the menses; for, that periodical return of the menstrual discharges, which is indicated in girls and women, by disorders in the heart, pains in the head, the cholic, &c. and which women, I believe, are sensible of every month of their pregnancy, with greater or less violence,

when they have a dubious and equivocal appearance ; the flushing in the face, the inclination to make water, the shivering spread through the whole body, and the other signs mentioned by Rodericus à Castro, have been frequently confirmed to me by experience. “ In-
 “ stantis partûs,” says that author, “ signa sunt
 “ dolor acrior sub ambilico ad inguina, in-
 “ deque ad lumborum vertebrae reflectens, ip-
 “ sius uteri ad inferiores partes descensus ; ge-
 “ nitalia cum dolore tument, febrilis quidam
 “ veluti horror corpus invadit ex naturæ ad
 “ excretionem accinctæ conatu, facies rubet,
 “ superiores partes gracilescunt, loca supra pec-
 “ tinem extenduntur, immissoque digito ad
 “ magnitudinem ovi in orificio uteri inveni-
 “ tur,” &c.

Physicians, and the laws of all ages and countries, have, without hesitation, trusted the examination of pregnant women to persons of that sex whose address and patience are perfectly suited to the delicacy and modesty of women in child-bed. The physician has only need of a faithful report of the party ; the matrix ought to dilate itself by degrees ; the infant ought to turn, and present its head ; the waters in which it swims ought to gather in the side of the membranes which answer to the orifice of the uterus. It is then to be presumed, that the delivery is at hand, and that it will be a happy one ; in a word, a delivery is a

lence, at the time answering to that of their menses, ought to be considered as the variation of their terms from their delivery. This variation does not take place with regard to the fœtus of animals ; the time of its stay in the matrix of the mother is always the same, and its discharge is always performed without any hemorrhage.

natural excretion, performed in the same manner as all others, by degrees, and with a due proportion, and the parts require a certain time to prepare themselves for it. The knowledge of the steps and laws of nature is of great importance, in order to form a judgment, whether we ought to trust to her the whole operation, which she generally conducts with success. This is an affair of some hours duration, when the delivery is natural and easy, which is happily the case of fourscore and ten out of an hundred; in which case nothing more is required than to keep a woman in the attitudes we shall presently mention, and to receive her fruit, which only requires a little patience, and not more address than is necessary for the most trifling operation.

Common deliveries are the same with women in cities as with those in the country; they might also be performed by them in the same manner as by animals, without assistance, without attendance, and without danger; but their want of exercise and a proper regimen, sometimes render their delivery forced, long and laborious. The physician ought then to inform himself of the state of the matrix, and of the manner in which the infant presents itself. Midwives are at present better instructed than they were formerly. We find few of them that dare still to depend on those puerile practices with which Joubert, a famous physician of Montpellier reproached those of his time.* The repeated

* That the bone Bertrand does not open to give passage to the infant; that it is good to make a woman in labour sit over a boiling kettle, or to place her husband's

repeated instructions of physicians, and the scrupulous care with which they enquire into every thing that has relation to the delivery, serve to guide the midwives, and the gentlemen who practice midwifery. There is a tradition, that a midwife of the Hôtel-Dieu of Paris, some years ago visited twenty-four women with child in one evening, and exactly foretold the time when each was delivered. It must be confessed, that they are seldom so certain in their predictions ; but, in general, they are capable of making a report sufficiently just to a physician of the condition of women who are with child, and ready to be delivered ; and it is his business, in consequence of this, to prescribe those remedies, and that manual assistance which he judges necessary. There are found, even in the country, those who are sufficiently instructed ; and I have seen remarkable

cap upon her belly, in order that she may have a better delivery ; and that these are the best means of procuring it ; that the matrons ought loudly to insist on not calling in a physician, either at a delivery, a miscarriage, or other disorders peculiar to women ; and that even midwives ought to be taught by physicians to allow good measure to boys, and not to girls ; how the caul ought to be managed, and if that of girls procures the lovers ; if it be true that we may know by the knots in the string of the after-birth, how many more children the mother will have ; whether those children that are born cloathed are more happy than others, and if their shirt preserves those from danger that wear it ; of harpies that are seen flying, and fixing themselves to the curtains of a bed ; if it be true, that women who are delivered at the full of the moon will have a son, and if at the new moon a daughter ; that lying-in women were fed too much, from the opinion that the womb was empty and ought to be filled ; if it be true that a lying-in woman is able to void milk instead of urine ? &c.

instances of their address and sagacity. What we have here said of able midwives ought to be extended to men-midwives, formed by practice, who frequently excel the most experienced midwives, in their care, their judgment, their address, and the knowledge of all the particulars required in the art of midwifery.

The physician being informed of the disposition of the matrix, and directed by the state of the pulse, and the other symptoms with which he is acquainted, prescribes bleeding in the arm, some cordial or composing draught, emollient clysters, &c. according as the circumstances are more or less pressing. He instructs the woman in labour to direct her efforts towards the matrix, and to spare her strength and cries for her strongest pains. People are to blame to imagine, that bleeding or medicines are absolutely necessary in all cases; a little broth or jelly, frequently taken, or a little wine and sugar, &c. are most commonly sufficient; and sometimes a prudent inaction is preferable to all other assistance.

The situation pointed out to a woman in labour, has also a great influence on her delivery; the following are the most favourable: A seat is made use of, which is either the knees of a strong vigorous woman, or of the husband himself, as I have frequently seen practised in Provence, on which the woman to be delivered is placed; she is also sometimes delivered on a bed a little raised; she may also be bent over a table, and leaning forward be delivered behind: or, in fine, she may be delivered standing, care being taken to have her supported by three persons of sufficient strength,
one

one on each side, and the other towards the back. These different positions facilitate the delivery; they are indicated by sound reasoning, and the success confirms the goodness of these methods. We may therefore, instead of attaching ourselves too much to one of these positions, in preference to all others, leave to the women in labour the liberty of chusing that which is most agreeable to them.

It sometimes happens, that in spite of the appearance of the most favourable signs, before the delivery, and the most regular and promising pains, the delivery cannot be performed without an extraordinary labour, and the assistance of men of the profession. A physician ought then to trust this operation to a surgeon and man-midwife, after having himself visited the orifice of the matrix, in order to determine with more judgment on the part he is obliged to take.

The infant should leave the matrix, with the head foremost, the face turned towards the back of the mother, and the shoulders of a height nearly equal. This is the most natural delivery. There is another which is almost as favourable; that is, when the feet first present themselves, and afterwards the whole body. This last is the method endeavoured to be taken whenever the delivery is difficult or unnatural. The delivery is contrary to the natural order, whenever the head or the feet of the infant do not present themselves in the manner just mentioned; and as many false positions are possible, as there are those in which the infant may be found. If it introduces, for example,

ample, its face, or the side of the head, into the orifice of the matrix ; if it presents the neck, one or both arms, the top of the shoulder, the belly, the back, one hand or one foot, the two feet and both the hands, the side, a hip, the knees, &c. these different parts must be pushed back, and the infant turned with great precaution, always taking great care of the navel-string ; after which, it must be seized and drawn out by the feet. It is also brought forth without too much difficulty, whenever it presents the breech.

The matrix sometimes opposes the delivery, either by its fall, by the callosity and resistance of its orifice, or by its casting itself a little too backward, either on the one side or the other : We ought then to begin with the reduction of this viscera, and not proceed to the delivery till it is placed in its natural position.

A delivery is sometimes so difficult ; for instance, when the shoulders of the infant are rested on the pubis of the mother, and the head is obliquely placed behind, &c. that there is a necessity for sacrificing the infant, notwithstanding its being alive,* and of making use of the same instruments as if it was dead ; but we cannot take too many precautions, nor conduct ourselves with too much prudence in a case so delicate : it is to be presumed, that no surgeon was ever so rash as to undertake such operations, without consulting his able and experienced brethren, and without putting in practice

* We ought first to attempt all the manual operations which Mauriceau, Dionis, and Daventer have pointed out, in their treatises on midwifery.

all the expedients which his experience, or the knowledge of a physician could suggest.

We ought also to neglect nothing in order to know whether the infant be dead or living; the immobility of the infant, the depression of the mother's belly, the coldness spread over her body, that which is felt on touching such of the members of the infant as are presented to the orifice of the matrix, the discharge of the meconium, or any other fetid matter, an offensive smell proceeding from the matrix, &c. are signs deceitful and equivocal. The examination of the fontanella, the temples, and navel-string of the infant, are much safer guides to obtain the certainty of a fact so essential and so difficult to be known, if we can touch either of these parts, and can perceive no pulsation in it, the infant is to all appearance dead, or soon will be so: But as we have only proposed to treat of a natural delivery, we shall pass over, in silence, the manual operations employed on these occasions, and the different instruments made use of in these dangerous cases.

For this reason we shall say nothing of the hernias of pregnant women, the vicious conformation of the matrix, the Cæsarian operation, &c. for these are operations in surgery that are never practised in ordinary deliveries, of which the nature of this work only requires a description. It is with these as with a simple disorder of the throat, the hæmorrhoides, and other diseases that are every day cured by internal remedies, though they sometimes require the hand of the surgeon; in a word, a common delivery is the work of nature alone, whose powers may be sometimes directed, en-

creased,

creased, or diminished, according to the rules laid down by physicians, which ought to follow and direct this evacuation as well as others.

We cannot too often observe to women, that the operations used in midwifery are extremely rare. It is dangerous to multiply the possibility of fatal accidents, by taking some extraordinary cases for an example. This observation is extremely necessary, when we hear many inconsiderate midwives say, that nothing is more to be feared by a woman than her lying-in. We however dare assert, that the smallest fever is more dangerous than this excretion; we ought, therefore, to believe, that precautions and examinations may prejudice the perfection of a delivery; they are very prejudicial when carried too far; for they very difficultly agree with the vivacity, the delicacy, the modesty and great sensibility with which that sex are endowed. Convincing proofs might be given of this; for here we need only compare the deliveries in great cities with those in the country, where surgeons are seldom consulted: in short, the operations to which we ought not to have recourse, till after a mature deliberation, and which require much practice, patience and dexterity on the part of the man-midwife, are not always so cruel and so dangerous as is imagined. Prudent and experienced practitioners in midwifery every day banish many useless instruments, which the passion of inventing had introduced, and too greatly multiplied.

Scarce has the infant left the matrix, when the after-birth follows, and falls of itself, by its own weight. It is, however, sometimes
neces-

necessary to favour its discharge, by loosening it from the sides of the matrix, as Hippocrates and Celsus have taught, by carefully bringing the fingers between the matrix and the placenta which sticks to it ; but we ought not to have recourse to this operation till after a certain time, when the hæmorrhage, pains, and other symptoms require it. The woman in labour may herself favour this expulsion of the placenta, by her endeavours, in coughing, breathing strongly on her hand, and in making a very strong expiration. Care must more especially be taken not to displace the matrix, by drawing the navel-string too roughly, which is by this means sometimes broken ; and this still increases the difficulty of extracting the placenta. There ought not to be left in the cavity of the matrix either any part of the after-birth, or any clots of blood. The internal remedies recommended for the expulsion of the infant and after-birth, the sneezing of the mother, which Hippocrates advises, salts, resinous gums, ordered by physicians under different forms, clysters, &c. are assistances that ought to be used with precaution, as well as proper injections, which are, however, sometimes used with good success.

The ligature of the navel-string is the first operation performed on the new-born infant ; it is done with ordinary thread several times doubled, turned two or three times round it, and tied at the distance of about two or three inches from the navel. This is done in order to prevent an hæmorrhage, exomphalus and inflammation in this part : at the end which is left, there is applied a small compress or pledgit,

pledgit, which is kept in its place by a slight bandage. Many pretend, that the ligature of the navel-string ought to be performed before the extraction of the placenta, and others believe, that it is better to do it afterwards ; but in this respect each may proceed as he shall judge most proper, according to the difference of the cases presented, or according as the placenta is sooner or later before it is loosened. Midwives, and the gentlemen of the same profession, are as free in this respect as the surgeon is in applying the bandage in bleeding ; for these disputes are of small consequence.

C H A P. III.

Of the state of the organs and functions of the new-born infant, and the evacuation of the meconium.

WE ought not to be surprized, that there passes a very singular revolution in the body of the new-born infant ; he quits a degree of heat much greater than that he meets with afterwards. The air which surrounds him is more dry, sharp, and light than the water in which he swam in the matrix ; his whole skin must therefore be sensible of these several changes : hence it swells, is irritated, and looks red ; a state that may be compared to that of an inflammation. This kind of erysipilas is the first disorder which children commonly suffer. The impression of the air is strongly felt in the nostrils, which have a very evident connection with all the internal parts : the viscera of the lower belly, the breast, and the skin are irritated ; whence results respiration,
and

and the play of all the organs that contribute to it; for the diaphragm, which is very moveable, and endued with an extreme sensibility, immediately contracts, on which the air rushes into the lungs, and causes the first inspiration. This new function, joined to the changes produced by the air in the vessels of the body, and to those occasioned by the ligature of the navel-string, give a new course to the humours of the infant.

The navel-string, one end of which is fastened to the navel of the foetus, and the other to the placenta, is composed of two arteries, a vein and the urachus. The examination of the urachus of certain animals has made some anatomists imagine, that we are not only provided with the same canal, but that it is destined, as in animals, to convey the urine of the foetus to a third membrane, known by the name of the allantoides *; and, indeed, we have seen young subjects, and even adults, who have voided their urine by the navel; but, in spite of all these presumptions, which appear solid enough, and which deserve the attention of the greatest anatomists, it is at present more generally believed, that the urachus of the human foetus is nothing but a ligament proceeding from the vesica or bladder, and which loses itself in the body of the navel-string; in reality, we can discover no opening in the vesica that has any

* Adest igitur urachus in homine evidentissimus è vesicæ fundo exortus qui tamen postea non unicus & amplius per totum ut in cornegeris, sed in pluries minutissimas fibras discissus, urinam in chorion tunicam quasi percolando transmittit. *Hieromi Fabric ab Aqua pendente de Format. Foetus*, p. 16.

communication with the urachus ; for, on pressing the vesica of an abortion, after its being filled with water, there does not pass one drop of it into the navel-string : it therefore appears more natural to think, that this ligament has no other use but to support the vesica, that it may not touch near the neck ; or that it is to prevent its being too much flattened by the pressure of the viscera of the lower belly. There is some probability that the foetus does not perform any excretion of urine all the time it is shut up in the matrix. The inertitude of the stomach, the liver, &c. raises a presumption of that of the reins and the bladder, and that the action of all these organs begins at the first moment of respiration.

Scarce is the ligature of the umbilical vessels made, when they become true ligaments ; the arteries serve to nourish the placenta, to filtrate into it the liquor which enters into the amnios ; to discharge the foetus of the too great quantity of blood that might incommode it ; to swell those small tubes that insinuate themselves into the matrix*, &c. the vein was destined to carry to the foetus the milky juice which was to nourish and give it its encrease. These vessels also served, at the time of the delivery, to extract the placenta. Some authors have advanced, that the navel-string is not absolutely necessary to the life of the infant, while it is contained within the matrix ; they have seen, they say, those born before their time, and in good health, who had no navel. This observation deserves to be confirmed.

* See *Les Essais de Physique sur l'Anatomie d'Heister* :

The foetus is contained within a covering that ought to be considered as a production of the placenta : this covering is composed of two membranes ; the external one known by the name of the chorion, and the internal one by that of the amnios. The placenta is a vasculous substance, formed by the ramifications of the navel-string, and serves to prepare the milky liquor brought to it by the tubes of the matrix, and to render it more proper for the nourishment of the foetus, &c.

The size of the liver in the foetus does not encrease, because the diaphragm remains immoveable till the moment of respiration. With a view to prevent the obstructions that would have been formed in this viscera, while it was deprived of the action of the diaphragm, and of the motion given to it by respiration, supposing that the blood had been obliged to enter and proceed out of it, as in adults ; and that the foetus might the more readily receive the nourishing juice destined for its support, nature has contrived a canal, in the sinus of the vena porta, which shortens the circulation, by conveying the blood into the vena cava. May not this circulation of the blood in the liver be also thus shortened, to prevent the secretion of the bile, which must be considered as a useless liquor in the foetus, whose stomach and intestines are wholly unemployed ? But when the infant is born, and the navel-string tied, the canal we have just mentioned, closes, and the blood of the vena porta passes into the liver, the secretion of the bile begins, and being cast into the duodenum, contributes to the digestion of the first aliments of the infant.

Anatomists have observed, that the capsulæ atrabiliaræ are larger in infants than in adults. This difference has given room for several hypotheses; some have imagined, that these capsulæ served as a reservoir for the blood brought into the reins, and to prevent the secretion of the urine, which is unnecessary in the foetus, since the blood is before depurated in the vessels of the mother. Others have imagined, that these glandulous bodies contained a liquor, which restored to the blood returning from the reins, the lymph it had lost by the little urine there separated from it. The author of the Physical essays on Heister's anatomy, has advanced, with greater probability, that the renes succenturiati secreted the meconium; and he suspects, that in these capsulæ there are canals that carry it into the intestines.

In short, the veins of a foetus are much larger than in adults, and are of an unequal surface; the bones of the cranium farther distant, and their future imperfect; the auditory conduit shut up by a membrane continuous to the epidermis; the bones of the whole body soft, and almost cartilaginous; the thymus extremely large; the appendicula vermiformis of the cæcum longer, and of greater amplitude; the teeth concealed in the gums, &c. It were to be wished, that the anatomists, who have observed these particularities, had made use of all their endeavours to discover their use; for these discoveries would have served to explain most of the functions of the foetus, and many essential phænomena of the animal œconomy.

There did not enter into the lungs of the infant, while it was in its mother's womb, as
much

much blood as was required to nourish it. The blood that was in the right auricle of the heart, instead of passing into the pulmonary artery, and returning, after having run through the lungs into the left auricle, by the pulmonary vein, passed immediately from the right auricle of the heart into the left, by an opening found in the partition between the two auricles, called the oval chink. 'Tis true, many anatomists have asserted, that the blood contained in the right auricle does not entirely pass thro' the oval chink of the foetus, but in part escapes into the pulmonary artery ; it does not, for this purpose, enter the body of the lungs, because there is a communication between the pulmonary artery and the aorta, by means of an arterial canal which extends from the one to the other, whose oblique orifice, which insinuates itself into the aorta, closes by little and little, in proportion as this artery encreases. This circulation is disturbed from the first moment of respiration, when it begins to be performed in infants in the same manner as in adults ; but it is to be presumed, that the oval chink does not suddenly close at the moment of the birth of the foetus, and that a part of the blood must continue to flow through this passage : all the blood does not at first enter the lungs. Could we deprive the new-born infant of air, this privation would not, perhaps, occasion its death. The experiments made by M. de Buffon on young puppies, favour this presumption. I have carried this point no farther, says this author ; but I have seen enough to persuade myself, that respiration is not so absolutely necessary to an animal newly born as to an adult,

and that it might, perhaps, be possible, by seizing it at that moment with precaution, to hinder it in such a manner, as to prevent the oval chink from closing, and to make, by this means, excellent divers, and a species of amphibious animals that shall live both in the air and water.

The lungs of new-born infants have two offices that are entirely new to them, respiration, which was not performed before ; and sanguification, which, to all appearance, was before performed in the placenta. “ The greatest
 “ number of physiologists have hitherto ima-
 “ gined, that the blood of the mother passed
 “ into the body of the foetus, by means of the
 “ placenta and the navel-string. They sup-
 “ posed, that the blood-vessels of the matrix
 “ were open in the back, and those of the pla-
 “ centa in the nipples, and that they commu-
 “ nicated with each other ; but the injections
 “ made into the arteries of the navel-string
 “ seem to prove the contrary ; the liquor is
 “ entirely returned by the veins, and not the
 “ least part of it escapes outward ; there pro-
 “ ceeds only from the matrix and placenta,
 “ when we draw the nipples of the hollows
 “ over which they are placed, some drops of
 “ a milky liquor, which serves to nourish the
 “ infant, and which doubtless enters the veins
 “ of the placenta, as the chylé does the sub-
 “ clavian vein. It has been at least observed,
 “ that the blood appeared rather in the pla-
 “ centa than in the foetus.* ”

After this account, which may be found drawn out to a greater length in treatises of

* Histoire naturelle de M. Buffon.

physiology, can we be surprized that a new-born infant finds itself uneasy and in pain ; that it so frequently loses all sensation, and that its life appears every moment on the point of departing ? The fever, caused by the revolutions we have been mentioning, and the kind of irritation and inflammation which all the parts of the body at first feel, makes it sensibly fall into a languid state. The different shocks received by its organs, the confused noise which strikes its ears, the smells which penetrate its nostrils, the light which, for the first time, strikes on the retina ; all these impressions, which are absolutely new to the infant, augment its surprize, its embarrassment, its pain, and that state of intoxication in which it finds itself : But, however speedy, however common this revolution may be, it does not prevent its entering into the class of those accidents which art ought either to prevent or diminish, whenever they have affected the infant to such a degree as to be considered as a true disease. May not the changes excited by it in the animal œconomy, have a considerable influence on all the functions of life ? and, may not those changes become the source of all the disorders which attend our bodies in their different ages ? in general, however, all the precautions taken against the inconveniencies of the revolution which happens in this beginning of infancy, may be reduced to managing the impression of external objects in such a manner as to render them as little sudden, and as little striking as possible.

-There is sometimes amassed in the trachæa, or wind-pipe of the fœtus, a viscid liquor, which renders the first motions of respiration

laborious and difficult: this liquor may be compared to the meconium; it serves as a basis or support to the formation of the rings of the trachæa. Some anatomists have believed, that it arises from the blackish glands found in the bifurcation of this canal; others have imagined, that it is furnished by the arteries and veins, and not being removed by any shock, the respiration having not yet taken place, remained in this canal, and there thickened more and more; but we believe, upon a better foundation, that this liquor is filtrated in the thyroide glands, and that it insinuates itself afterwards into the trachæa, by the small punctures discovered in it*. This matter is sometimes swallowed down in the first inspirations of the infant; at others, it is expectorated by the infant a little while after its birth. It may, perhaps, adhere to the trachæa, in the manner of a slimy varnish, and preserve that canal from an immediate contact with the air, and the convulsive coughs which its first impressions might occasion.

Austrius asserts, that the eyes of new-born infants are green and bluish, and that they do not take their natural colour till after the fifteenth day †; and Albert makes the same observation. These authors have thought that they perceived this green colour in eyes that were only dull, and without much brilliancy,

* See *Recherches Anatomique sur la structure & l'usage des glandes*, par M. de Bordeau.

† *Occlus puerorum in primo ortu virescere Albertus Germaniæ lumen prodidit. Vidimus quidem; eo tamen etiam ad glaucedinem non nihil vergere, in progressu vero temporis commutari ad colorem qui juxta naturam potissimè exuperet. Sebast. Austrius, p. 116.*

from their having not yet acquired the strength which the exercise of their office gives them. The cornea has not yet all its transparency; the muscles of the eye are without action; the pupil is, perhaps, shut up by a particular membrane, as anatomists have pretended to demonstrate; in short, the aqueous humour is then neither so abundant, nor so attenuated as it is afterwards: it proceeds pretty nearly from the same causes that the eyes of persons, when dying, are disordered, turned and immoveable.

The size of an infant, born at its full time, is commonly twenty-one inches, and it weighs about twelve pounds. The disproportion that appears between the head and the rest of the body diminishes by little and little, and does not wholly disappear till it is three or four years of age; the skin, which is extremely fine, seems reddish; and, we are assured, that those infants whose skin is the reddest at their birth, are those who have at length the finest and whitest skin. The form of the body and members of an infant, on its coming into the world, is not completely finished, all its parts are, as it were rounded, and appear swelled; there commonly arises even a yellowness at the end of two or three days, at which time milk is found in its nipples, which it is customary to squeeze out with the fingers. There is formed, at the top of the head, at the fontanella, where the beating of the carotid arteries is sometimes seen, a kind of crust, or thick scurf, which is obliged to be rubbed with a brush, to make it fall off as it dries. It seems, says M. Buffon, as if this production, formed over the opening of the cranium, has some analogy with

with that of the horns of animals, which also derive their origin from an opening of the cranium, and the substance of the brain. All the extremities of the nerves become solid when exposed to the air, and it is this nervous substance which produces claws, spurs, horns, &c.

The skin of children, at their birth, is covered over with a whitish and viscous liquor that was contained in the amnios; this they easily remove with wine or warm water, either separate or mixed together. This lotion is also a remedy for the inflammation of the skin, which is common enough at this time, the cause of which we have given at the beginning of this chapter; it augments the motion of the humours, and dissipates the bad effects of the air; they also nearly answer the same intentions by shaking, extending, and bending the different members of the infant; by slightly rubbing the belly, and the different organs of the senses; by reviving it with slight irritations which serve to remove the obstructions formed in the vessels of the skin, and to divide the mucous juices that are found in all the articulations.

Entire nations, even those who inhabit cold climates, practise the custom of plunging their infants, as soon as they are born, in cold water, without its being attended with any disadvantage*. 'Tis even said, that the Lapland-

* Some authors have pretended, that cold water, poured on the head, at the baptism of infants, is prejudicial to their health; and Albert gives the history of an infant who died at the close of this ceremony, which was performed with cold water in the midst of winter. It would be very easy to remedy this inconvenience, since nothing more would be necessary but to warm the water made use of in baptism.

ers leave their children in the snow till the cold has seized them so far as to stop their respiration, and that then they plunge them into a bath of warm water; they are not quit with even being washed with so little precaution at the time of their birth; they are washed in the same manner three times a day for the first year of their lives; and in the following, they are bathed three times every week in cold water. The people of the north are persuaded, that cold baths render men strong and more robust, and for this reason, they force them so early to contract the habit of using them. It is true, we do not sufficiently know how far we may extend the limits of what our bodies are capable of suffering, of obtaining, or of losing by habit. The Indians of the isthmus of Darien plunge themselves, without injury, into cold water, to refresh themselves, when in a sweat; their wives throw themselves into it when drunk, that they may the sooner recover from their intoxication; and the mothers bathe themselves, with their children, in cold water, the instant after their delivery.

From this custom, which we consider as extremely dangerous, says the ingenious M. de Buffon, these women very seldom die by the consequences of child-birth, while, in spite of all our care, we see numbers perish amongst us. But, are these two facts justly stated? Is he very sure that but very few women die in child-bed in the countries where they bathe in cold water immediately after the birth of the infant? Is it true, that in spite of all the endeavours of the men of art, great numbers die amongst us? In short, if we suppose, for a moment,

ment, that this calculation is agreeable to truth, does it thence follow, that we ought to conclude, that the immersion of women, just delivered, would be attended with salutary effects, and the want of this custom, with those that are prejudicial?

Locke advises plunging the feet of infants in cold water, though it be even in the midst of frost and snow. He cites the example of the Romans, and of the Jews who live in Germany and Poland, who plunge themselves in the rivers of those countries in all seasons of the year. In Ireland, they not only plunge the feet of infants in cold water, but even the whole body. There are also some Scots ladies who wash their infants in cold water, sometimes mixed with ice, without finding any inconvenience from it.*

These several authorities ought to make us suspend our judgment on the dangers and pretended advantages of the immersion of infants in cold water. We ought neither to condemn nor receive this practice, till after a sufficient number of observations carefully made. We ought first to enquire into the disposition of the interior organs, the nature of the climate, the force of custom, the state of the skin, &c.

Of all the parts of the infant, the head is that which requires the greatest attention of the physician, and of the midwife's address. It may have suffered some compression in its passage from the matrix. It is as soft as wax. It is essentially necessary to round, and gently mould it. It ought to be a little flat on the

* Locke's treatise on education.

sides, and rounded towards the fore part, above and behind. It is possible to shew that this is the most natural form, by describing the number and uses of the organs it contains. The error of the savages, for instance, who flatten the foreheads of new-born infants, is very evident; since they contract the sinus, which is afterwards to be lodged there, &c. But these observations would be the more useless in this work, as happily no abuse of this kind has been introduced among us, that can be of any dangerous consequence.

The infant is sometimes extremely weak; it is thought to be dead, and appears without either sensation or motion; and here slight cordials, wine, or proper spirits, seldom fail to reanimate its weakened, and almost extinguished faculties. Volatiles or aromatics are also applied with success to the breast, the back, the head, the temples, or the nose. This, which the midwives commonly practise, is found prescribed by our antient physicians, who made use of these lotions even for those who were grown up to years of maturity; in short, they warm the infant with linen cloths; this slight heat usually prompts it to make water for the first time: if it be necessary, there is put into its mouth some cordial, such as cinnamon water; they irritate its nostrils with a feather, in order to make it sneeze; they blow into its mouth to facilitate respiration, &c. I have seen instances in which a little cool air, or sprinkling some drops of cold water, had the effects of a cordial in contracting the skin of the whole body; but the cries, the uneasiness, the contortions, the pains, and fever of the
new-

new-born infant, are seldom terminated but by the evacuation of the meconium. This evacuation is the crisis of the disorder; it proves in what manner physicians ought to set a value on purgatives in almost all disorders: indeed this first fever is the least manageable, the most convulsive, and the most inflammatory of all others, and yet nature puts an end to it by an evacuation. Were we to follow the common method of reasoning on this occasion, what a prodigious number of bleedings should we prescribe to remedy the disorder of the blood-vessels, which are now much more irritated, constrained, choaked up, and distended, than at any other time of life, either from the impetuosity of the blood, which is more considerable at this age, or from the delicacy of the vessels in which it is contained. We nevertheless see, that the liberty of the belly establishes a due order and equilibrium: so true it is, that all the functions of the human body depend on the good state of the first operations, of the harmony of their movements, and especially on the order of the evacuations.

The fever, the contraction of the skin, the motion of the diaphragm, and the lungs, produce this intermission; but this is done by exciting an abundant secretion; by thus exciting the organs to act the important part they are to play in the animal œconomy, and not by imaginary compressions that are demonstrated to be impossible by anatomical observations, and a comparison with the other evacuations.

The lower belly of the infant being thus put in motion, its breast being excited by a new course of humours, and by the motions of respiration,

piration, and its head being agitated by its sensations, and the impression of external objects, is it surprizing that there should be performed, in these three cavities, a salutary resolution, followed by the evacuation of the meconium, which is the representation of the progress of the functions, and diseases of adults?

Nature, in order to obtain this evacuation, has sometimes occasion for the assistance of the physician, who ought always to proportion what he prescribes to the strength of the infant, its vivacity, the order of its functions, the violence of the fever, and the intenseness of all the other symptoms. We commonly make use of a little wine or sugar put into its mouth, of honey, syrup of succory, manna, in a little broth, or some other approved purgative, given them some hours after their birth, always having a regard to circumstances, and avoiding precipitation, at least if we do not observe that the case is urgent: that the child suffers greatly; that its intrails are disposed to perform the excretion caused by the contraction of the skin, the action of the diaphragm, and the force and play of the whole machine, which had directed towards its parts the oscillations necessary to this evacuation, and not by the irritation of an imaginary acrimony of the meconium, as Boerhaave and his followers pretend.

Instead of purgative potions, emollient clysters are frequently proposed. Though these at first appear salutary, and to be very necessary, we imagine that they may be injurious, by hurting the colon, and compressing the diaphragm, which is still weak, and capable of falling down.

This

This impression may also, perhaps, hinder those organs from taking their perfect equilibrium, which is but little known, and on which, however, many of their functions may depend. A simple suppository made of honey and soap, is doubtless preferable to it. The peristaltic motion of the intestines ought to begin at the stomach, and continue by little and little; and the use of clysters may disturb this order in infants, and even in adults.

Precisely at the time when the infant has need of evacuation, the breasts of the mother are filled with a kind of milk extremely proper to produce this effect, and which it is the more natural to make use of, as it is frequently hurtful to the mother, and cannot be so to the infant, who has yet no need of nourishment; we may, therefore, make use of this medicinal milk, prepared by nature, as well as to ease the mother, and shorten the revolutions of the secretion of the mammary veins, as to purge the infant.

A curious and attentive observer finds a secret pleasure in perceiving and making known the conformity observable between the manner in which some animals attend their young, and the rules formed by physicians for the treatment of new-born infants. We see the mother of young animals very attentive to lick, to move, to warm, and to clean them with their saliva. By this means, they shorten the time of their fever, and accelerate the excretion of the meconium. I have seen puppies who have voided it only in proportion as they were licked by their mother; which in some measure proves the relation there is between the irritation of
the

the skin, and that of the entrails. The physician, among men, has supplied what instinct has so well taught to animals ; and it is to reflection, and the care of our first masters, that we owe the smallest particulars that are at this time delivered down to a general empiricism ; the progress of which, physicians ought to hinder, by observing every thing that relates to these operations, which are of greater importance than one would at first imagine.

As soon as the infant has voided the meconium, and is well cleaned, he is wrapped up in his swadling cloaths ; they first put on a shirt slit open behind ; they afterwards gird the breast with a square piece of cloth, called a bed, which extends even to the feet, over which they apply a woollen roller, three inches broad, in circles, which extend obliquely, descending towards the inferior extremities, from whence they roll it back again to the waist. They also sometimes content themselves with taking some circular turns on the breast, and with keeping the arms stretched, by means of pieces of linen, or a woollen waistcoat put over the bed. Upon this, the infant is laid, and its arms confined and extended against its body by a fold made in this waistcoat, and the whole kept close by another woollen roller of about two ells in length, applied in circles like the former : in short, over all they put a blanket, which is worn for a certain time in all seasons. In many places the infant, thus swathed, is laid on a square mattress, stuffed with feathers, one angle of which sustains the head, while the other answers to the feet ; this last is doubled up and fastened to the two lateral corners with

E large

large pins : as to the head, it is covered with two or three small biggins, the first of which is of linen, and the others of woollen, and these are tied behind the neck. In many provinces they add a stay-band, or a kind of head-dress with two ends, which hang down on the sides of the head, and are fastened on the breast with pins, in order to make the infant hold its head straight, which very well supplies the want of the mattrass just mentioned.

This piece of work, which the women perform with an address and expedition peculiar to their sex, and which appears to them no more difficult than the dressing of a doll, demands more attention than is generally imagined, and even deserves to be carefully studied and analized.

Let us begin with the head, which ought to be carried in a direct line from the neck, and without being constrained, be placed a little more forward than behind, and neither inclining to the one side, nor the other, when it is obliged to be held in a fixed situation. Now we shall best succeed in procuring it this position, by laying it soft on one of the angles of a mattrass well stuffed with feathers, as is practised in Provence, with only the stay-bands, which seem most proper when accompanied with the mattrass, which supports, as it ought, the nape of the neck.

One of the effects of the biggins is bending the ears to the head : this is doubtless the original cause of their usual immobility ; for it is to be presumed, that they are destined by nature to be moved in different directions, to contract, to straiten themselves, &c. as in all animals ;

animals ; the more easily to seize, and with the greater diversity to direct all the percussions of sound. Thus it was remarked, that the children of those people, who never make use of biggins, have their ears less flat, farther from the head, and more adapted to receive the impressions of sound.

It ought to be observed, that the ears should be confined by the strings of the biggins. The ribbons made use of to fasten them to the neck, ought never to be badly tied, nor too tight, lest they should inflame and chafe the skin.

Those who make use of little shirts cannot take too much care of the motions which the shoulders and arms of infants are obliged to perform ; and here it must be observed, that those shirts that are cut, or open behind, are the most commodious. The swathing of the breast, with the bed and roller, provided that care be taken not to confine the sides, favours a little the extension of the spine of the back, which had before been bent all the time that the mother was great with child.

It is commonly believed, that the inferior extremities are more free when a little extended, and that the manner in which the knees, the feet, and the legs are bound to each other, serves to streighten them, and to keep them in a proper position. We do not condemn this practice, provided that care be taken not to fasten them too close, and not to separate too far asunder the sides of the feet.

Let us now see if the pretended advantages of swathing, we have just mentioned, can compensate for the more real inconveniencies with which it is attended.

The head, the ears, and the neck, are always more or less confined and depressed ; for instance, if the stay-band is placed a little awry, there is danger of making the head incline to one side or the other. Would it not be better to leave the parts to themselves, than to expose them to the inexperience, awkwardness, and haste of midwives, or nurses ? Is it not enough to have the infant's head supported all the time it is to lie in bed ; that is, till he has strength enough to support it ? It would then at least be entirely at liberty, and sheltered from all accidents.

The cries of the infant thus swathed, the fleeting redness shewn on the skin, the suffocations, and violent coughs to which they are subject, are but too often the fatal effects of compressing the breast. Whatever precautions are taken, the sides, which are soft, and have nothing to support them within but the play of the diaphragm and lungs, must be sensible, as well as the hypochondriac regions, of the impression of these ligatures. If it was possible to swathe an infant before it began to breathe, the sides which would be depressed by the circular bandages, would not raise themselves at the moment of the introduction of the air, without pain and danger. Now, the first motions of respiration are never very complete ; the sides are always to extend themselves outwards, and the slightest compression stops them. It would therefore be a more advantageous, as well as more simple method, to lay aside the use of swathing, since it is accompanied with dangers that are easily avoided ; and there are no advantages that can compensate for such hazards.

hazards : it is also very improper to fasten the inferior extremities the one against the other ; for, by this means, the feeble articulation of the thigh is sometimes disordered, by placing the toes at too great a distance. Many women carry this dangerous custom to an excess, and imagine, that the feet are the better situated in proportion, as the toes are placed more outward, and the heels inward ; a position neither natural nor favourable.

In short, no inconvenience can attend leaving the members of an infant merely at liberty ; and, on the contrary, there are many in the usual method of confining, binding, and compressing them. The very motions they are obliged to give to the different members of children, make the men of learning tremble.* We may even boldly assert, without fear of being contradicted by the learned anatomist, that most of the bad dispositions of the body, the disorders, the dislocations of the members, and even

* There are people who imagine, that infants would walk on all-fours, if care was not taken to have them swathed. Such opinions as these can only arise in the minds of ignorant and lazy speculatists ; for, it is easy to demonstrate anatomically, that the articulation of the head with the neck, that of the bone of the arm with the shoulder-blade, and that of the knees, are contrary to this kind of progressive motion ; the form of the face indicates that the natural attitude is that of an erect posture. The man is capable of assisting himself, more or less, with his arms and hands, and of skipping on his two feet pretty nearly in the same manner as a bear when bent down ; but he is formed to walk erect. This position is so dependent on the conformation of his members, that he takes it of himself, though even no care be taken to bring him to it.

M. Buffon, in his natural history, says, that the little negroes embrace one of the mother's hips with their knees

even many of the internal maladies, are derived from the care taken to bind up too closely the bodies and extremities of infants. In vain do they appeal to established customs; this reason for the practice has but little weight with men accustomed to examine the foundation of things. The Chinese, who crush the feet of their girls, the savages who flatten the heads of their children, those who bore their noses, endeavour to enlarge their nostrils, to lengthen the opening of the eyes, pull up the beard by the roots, draw out the teeth, &c. have the same authority to alledge, if any one condemns their practice. From these general excuses, made by ignorance and prejudice, people are led to practices which it is essentially necessary to reform.

The ease of carrying about, and handling infants, thus inclosed in a kind of case, is the only advantage that can be obtained by swathing. There is even some probability, that we owe this method only to the desire of mothers to take their children abroad with them; and that the ancient physicians imagined, that they ought to give them their consent, after their having provided, as much as possible, against

and feet, when they are disposed to suck, and that they cling so fast, that they are capable of supporting themselves in that situation, without the assistance of the mother's arm; they attach themselves to the breast with their hands, and constantly suck without being disturbed or falling, though the mother all the while works in her usual manner: These infants begin to walk at two months old, or rather to draw themselves forward on their hands and knees; an exercise that at length gives them such facility in running in this manner, that they move almost as fast as if they were on their feet. But this proves nothing against what we have advanced; for this situation is not the less forced.

all

all accidents, by methods which have not been exactly followed; but this taste seems to be entirely changed. It would, therefore, be easy, with a view to the modern customs of society, to take a just medium, equally suitable to the tranquillity of mothers, and advantageous to the formation of the bodies of infants. Nothing more need be done but to put them on a bed, or wrapper, and place them in a kind of mattress a little hard, and to double over them the angles of the mattress, and to cover the head with some biggins without strings. The child may also be placed in a kind of portable cradle, or in a box, wrapped in such clothes as are most proper and becoming; by this means we shall avoid the accidents too common in the received practice, and shall answer all the views that can be thought of, in relation to the convenience of carrying children from one place to another. The custom generally received amongst entire nations, and the not uncertain effects of this method, authorise this opinion; the Icelanders, the modern Greeks, and many other people, never swathe their children*: The Greeks satisfy themselves with

* They know not what it is, says Mr. Anderson, to swathe, rock, or nurse a child. They put him on a kind of breeches and a vest at fifteen days old, and leave him to sleep on the ground, where he turns and rolls himself as he pleases, till he can help himself, and learn to walk. Such is the beginning of the miserable education of the children of Iceland, who are inured, from their most tender infancy, to all the hardships of life: However, in spite of the little care taken of them, their bodies and members are strait enough, and it is rare to find an ill-shaped person amongst them; which is an evident proof, that nature does every thing by herself, when we leave her to act, and avoid troubling her with our superfluous cares. *The Natural History of Iceland, Greenland, &c.* Vol. I. p. 243.

laying them in a cradle, after having wrapped them up in a few clothes. The Siamese, Japanese, Negroes, the savages of Canada, those of Virginia, Brazil, and most of the people of South America, lay their children naked on beds of cotton suspended, or put them into a kind of cradles covered and adorned with skins. The Icelanders do not procure for their children even these slight conveniencies, yet there is scarcely found amongst them a person lame or hump-backed, and their children walk at four or five months old: in short, silence, an obscure light, air a little warm, and rest, are as necessary to infants, in the first hours after their birth, as broad day-light, noise, strong smells, and cold, are pernicious. The animals put their young in a warm and tranquil place, shaded from the light; so true is it, that nature is extremely attentive to treat with precaution frail and delicate organs. See on this subject the excellent thesis of M. Latier, regent doctor of the faculty of Paris: *An ab-lactandis pultricia potior è medulla panis aut malti farinâ* * ?

* Imbecillioris porrò naturæ sunt ἐνμετάβλητοι quotquot videlicet fibris sunt tenerioribus & exquisitori sensu donatis; qui proindè rebus externis omnino facilè læduntur, scilicet aëris afflatu frigidiusculi, vel solo suaveolentium odore, &c. Eorum in censum referuntur infantes, pueri, mulierculæ, literarum cupidi, prægnantes, senum maxima pars, &c. Verum inter illos primatum infantes tenent ex omni capite — Hinc aqueus humor inter nascendum turbidus, cæcitatem infert temporaneam, quâ pulchrè proteguntur neophytorum oculi contra vim luminis. Ne sonus vehementior illorum aures divellat teneras; osseus auris externæ ductus, apud eosdem, nullus est.

C H A P. IV.

Of the sleep of the infant ; the examination of the bridle of the tongue ; the manner in which he ought to be rocked, cleaned, and put to bed ; and of the time when he ought to take the first aliments.

WE may consider all the time infants pass in the matrix of their mothers, as spent in sleep. It is not therefore astonishing, that they have such a propensity to it ; and nothing is more proper to rest them after the fatigues they have just suffered. All the sensations they have experienced, ought to be considered as disagreeable and painful. The new oscillations of their nerves have caused a kind of amazement in their souls ; and have, perhaps, determined the state of fear and timidity that is the characteristic of this first age ; and it is only by treating these sensations in the manner pointed out in the preceding chapter, that we can destroy or avoid this dreadful impression. Infants then being placed in a warm, darkish, and tranquil place, there can be no danger in leaving them to themselves, and giving the different parts, of which they are formed, time to assume insensibly the motion that belongs to them.

A thousand observations shew, that the impressions made on sensible bodies, or the more or less lively motions of the fibres of the brain, are perfected by little and little, and that the organs insensibly acquire all the necessary aptitude,

tude, freedom, and liberty. The ideas ripen, if I may so say, and unfold themselves, as much, and even more, in sleep, than when waking; this the starting, crying, dreams, and terrors of the infant, sufficiently prove. These impressions are the forerunners of greater troubles, and stronger pains, as well as of all the agreeable sensations the child is afterwards to experience. The learned physician, who is capable of distinguishing this state from that of some real malady, will not be alarmed; he will not approve of the conduct of those, who from an ill-placed sensibility, interfere in such cases, by proposing medicinal preparations. There are, particularly in Provence, popular errors on this subject, that it is of great importance to reform: They have recourse to narcotics, without any necessity; at Montpelier, in particular, they make extraordinary use of them; and it is surprizing, that the wisdom and skill of the physicians formed in that city, or maintained in its famous university, should suffer so great an abuse to subsist. The love of ease, joined to the natural vivacity of the women of this country, doubtless prevail over their advice. They most commonly address themselves without consulting them to the officious priests, who use the syrup of poppies with so little precaution, that it becomes almost always necessary in the disorders of adults. Opium, and all other narcotics appear to me to be useless, and even dangerous, in the case we are mentioning. These medicines check the play of the nerves, suspend the unfolding of their oscillations, blunt their sensibility, disturb or

6

retard

retard the order of the secretions, and at length make impressions, more or less, strong and permanent on all the organs that have taken their natural tone. There is also some danger in distracting infants by too lively sensations, in carrying them abruptly into broad day-light, in holding lights near their cradles, in exciting them to take nourishment : But once more, time and nature remove these accidents, without the assistance of remedies, and the making use of them is only giving them a very unnecessary disturbance. As soon as people have the patience to wait, they will see the infant return to himself, cry, be still, awake, and go again to sleep : he will become accustomed to the rapidity of these changes, and his soul will learn not to be moved at them. We have nothing to do but to watch, we then may surprize him exercising himself, if I may use this term ; he opens his eyes, and shuts them again, he twinkles them, they are fixed by a candle, or the fire ; and he is remarkably busied in observing their lustre ; at length, he turns his eyes, and makes them take a vicious direction, when they are directed with a too fixed attention to objects that are not exactly placed over against him.

Scarce is the infant recovered from his astonishment, when he makes known, by the motion of his lips, that he stands in need of some nourishment. He sucks his own glands, and draws saliva from them ; he swallows it ; he rejects it, by putting it in foam out of his mouth : if any one presents a finger, he seizes it forcibly ; rolls it his mouth, and demands the nipple ;

ple ; but before it be given him, it is not sufficient to exercise him, by little and little, to seize it as he ought ; we ought also to examine if he is not hindered by some fault in the formation of his tongue. The tongue is sometimes so closely tied to the lower part of the mouth, by means of the bridle, that it is obliged to be cut with the finger or nail passed gently under it. We cannot approve the practice of most midwives who perform this operation on all children, without distinction, from the opinion, that the bridle ought always to be cut ; though it is very necessary, and serves to retain the tongue. There have been some infants who have swallowed this organ, on the bridle's being cut through, which held it down before. This thread is not always cut in so tender an age, even though it should advance a little too near the tip ; but is left till the tongue grows longer ; for, at present, it requires but a little liberty to enable the infant to suck and swallow : In a word, the bridle ought never to be cut, except when it is extended almost to the tip of the tongue, which is very uncommon.

The suffocations, cries, and convulsive motions of children, are sometimes the effects of pain : But as infants have not the power of expressing their natural wants and sufferings, and as the state of intoxication, in which they are found, is attended with the same symptoms, it is proper that we should be perfectly acquainted with their cause. If they depend on the affections of the astonished soul, we ought to wait till the senses are become accustomed to the

the impresson of objects ; if they indicate the want of nourishment, it ought to be given them by little and little *. If they proceed from their being too closely swathed, we ought to make haste to set them at liberty ; if they are the consequence of a real illness, as pains of the bowels, which are a proof, that the meconium is not entirely evacuated, its discharge ought to be favoured by making him take a little honey, some spoonfuls of sugar and milk, or giving him to suck a little manna in tears, or the syrup of succory.

When the belly of a new-born infant, which should naturally be soft and flat, becomes extended, swelled and filled with pain, when his

* We can no otherwise supply this necessity. But our women, says Joubert, are afraid of being slaves to their children ; and this they frankly confess ; but some of them are such slaves to their pleasures, that they won't suffer the wench to bring them the squalling brat, on any account whatsoever, to receive the breast, if it is not his hour, but had rather that she should walk about with him, sing him some fine songs, or rock him till he goes to sleep ; but if the child cries with hunger, how would they have him go to sleep ? They know well enough the common proverb, that *when the belly is full the bones would be at rest* ; the infant, therefore, whose belly is empty, and tormented with hunger, before his usual hour, cannot sleep, and to appease, or satisfy him with a song, is mere mockery. I would fain know, whether the nurse, having a good appetite, would, instead of her supper, be contented and well satisfied with a song, even though it should be *Orlando de l'assas* ; or, whether the cravings of her appetite would subside with a dance. We have a proverb, which says, that *the hungry belly has no ears* ; and another very old one, that *the empty belly is not easily contented with words*. But I am in company, says the lady, and would you have them bring my child, for me to shew my breast ? This, it must be confessed, is a mighty important affair, and a most pertinent excuse ! *Erreurs Populaires*. Tome I. p. 548.

hear,

heat, the redness of his face, convulsions, continual crying, and the irregular motions of the diaphragm and heart, begin to appear, the necessity for these medicines is sufficiently known, and they may be administered without fear.

But nothing appeases infants so much as motion, especially when they are not hungry : They easily sleep on being moved, by giving them some gentle blows on the belly or back, by rocking, &c. Every body knows what is meant by a cradle ; which is a small bed, more or less elevated, and so well placed on two arches of a circle, that the least effort is sufficient to make it incline to either side, and to procure the infant, who is laid in it, a motion that renders him composed and tranquil. There are children so much habituated to these slight shocks, that they cannot sleep without them, and who awake with plaintive cries, on the interruption of this motion. This is of the nature of the gymnastic exercises, which were more practised by the ancients than they are by the moderns. We do not immediately conceive the benefit that may arise to the body from its being thus moved from one side to the other with a greater or less degree of swiftness. There can, however, be no doubt, but that the frequent varying of the atmosphere, the regular and moderate shocks given to all the parts, and the action of the viscera on each other, must have very valuable effects. The resistance of the air, by which the whole body is supported, when equally poised, acts by compressing all its parts, in the manner of so many slight frictions, removes obstructions from the smallest vessels of the skin, and facilitates the motions

motions of the liquors contained in their cavities. These parts are irritated, and acquire an equal tone, which establishes the equilibrium that produces sleep: For, it is proper to observe, that the infant does not go to sleep when unequal and irregular shocks are given to the cradle; on the contrary, he suffers and complains, and can only be appeased by the smoothness and uniformity of the motions; from whence there results a certain harmony between the action of the organs, and the distribution of the humours, very favourable to the health.

The care taken by the mothers, or the nurses of children, to accompany the motions of the cradle, with certain slow airs, and a repetition of one and the same sound, does not a little contribute to hasten the sleep of infants. This they so perfectly perceive the use of in a more advanced age, that they sometimes require the mother to hush them to sleep with a song, which has the same effect upon them, as the gentle murmurs of water, or the softest and most melodious accents. Indeed, if the movement of the air that is sung, does not answer to that of the cradle, the infant will not sleep; thus persons bit by a tarantula dance only by means of certain airs, that are varied according to the degree of the tension of the fibres of the brain: this is like the songs of artists and labourers, which favour their work when their tunes are found to agree with the motions it requires. The rocking of the cradle, and the airs with which it is accompanied, are therefore not unuseful; perhaps they may even contribute to form the constitution of infants, and to render them strong, lively, gay, tender, grave, or dejected.

dejected. This important exercise is happily committed to the care of girls, to nurses or mothers, whose patience renders them more proper for these affairs than men.

Can we sufficiently blame the cruelty of those nurses who are not moved by the wants, the cries and groans of infants; who content themselves with jogging the cradle with greater swiftness, and even with fury, when they have no inclination to sleep, or their slumbers are interrupted by some inconvenience? Many of those vomitings, the cause of which we are frequently at a loss to assign, proceed from thus rocking the cradle without precaution; and, may it not be possible, that the too violent agitation of the cradle may be capable of discomposing the brain of infants; and producing disorders in it? When their sleep, on the contrary, is too long, and their health is in danger of being impaired by it, they ought to be taken gently out of the cradle, and awaked with precaution, by letting them hear soft and agreeable sounds, and shewing them something brilliant. The slightest sensations, the least motion, a little more or less light or noise, or odours more or less strong, produce remarkable changes in bodies so tender and impressible; their œconomy and connection with the little life of infants, if I may be allowed the expression, are of as great importance, as the most inflamed passions, and the most violent efforts in adults. We ought to form a judgment of these things by comparison, and not to be afraid of entering into particulars that appear minute, and yet are extremely interesting.

The neatness of children requires rules ; for the different parts of their bodies sometimes become inflamed and ulcerated, from the little care taken to clean them. We need but examine with what scrupulous attention animals, birds, and insects keep their retreats and nests extremely clean, in order to be convinced of the importance of not sparing our pains in this respect. We ought to change a part of their cloaths, at least twice or thrice a day, and even in the night ; and this care is so necessary, that the savages themselves attend to it ; for tho' they are in want of linen, and it is impossible for them to change their skins so often as we change the infant's clouts, they supply this defect, by making use of a matter so common, that they cannot be under the necessity of sparing it. In the northern parts of America, they put at the bottom of their cradles, a quantity of powder made of rotten wood ; upon this the children are laid, and covered with skins. This kind of bed, they pretend, is as agreeable and soft as feathers ; but this custom is observed only to keep them clean, and not in compliance with the delicacy of infants : in reality, this powder absorbs the humidity, and is renewed from time to time. In Virginia, infants are tied naked on a board covered with cotton, which has a hole in it for letting through the excrements ; but the cold of that country ought to banish this custom, which is almost generally observed in the east, &c.

Children should be washed oftener than once a day ; they should not be suffered to lie in their urine and excrements ; and care should

more particularly be taken of the parts next the linen. Infants are commonly washed in warm water : there are, however, some nurses who clean their children with their own milk ; but it is better to lay aside this custom, because the milk leaves a cress upon the skin, and encreases the acidity and fermentation of that atmosphere with which the infant is already but too much surrounded, from the nature of his aliments, and the turn given to his respiration. Sometimes they also make use of their spittle ; but warm water, to which may be added a little wine, when there is a slight inflammation to be removed, appears to us to be preferable. I have seen women, in Provence, who regularly caused their children to be licked by dogs, that were very fond of this employment. Animals, 'tis true, clean their young so well, and their tongues are so soft and proper for it, that it seems natural to procure the same assistance for infants. The observations that have been made on the cure of scabs and ulcers, by the assistance of the saliva and tongue of dogs, point out the use of this remedy, in these disorders of the skin, and authorise the advice we give, of making use of it to clean or cure that of infants.

Let us now proceed to the manner in which children are usually put to bed. The nurse lays them on their backs, with their faces turned upwards ; but this situation is that which infants seldomest take when left to themselves ; for they rather chuse to lie either on one side or the other, with the legs and arms a little bent ;

* See L'Histoire Naturelle de M. Buffon.

this is the most common position of people in a good state of health ; and, indeed, it is that which is the most natural, the most commodious, and the most advantageous. The viscera have then the greatest liberty ; this Hippocrates has very judiciously observed in his first book of prognostics. It is evident, that when the face is turned upwards, the course of the humours is checked, both in the head and the belly. We may then be permitted to conclude, from this consideration, that it is more healthful for infants to lie on either side. Anatomical examinations favour this presumption. The respiration and motion of the heart, are more free, the spleen and liver are less compressed ; all the viscera are retained by the partition which separates them, the skin has less tension, as well as the spine, the muscles are not in a state of considerable contraction, &c. But this rule ought to take place only with regard to children of one or two years old, there would be danger in making use of it in a more tender age.*

As to the time when the infant ought to take nourishment, it is very difficult to give fixed and invariable rules on this subject : However, as we see that it is not impossible to establish a regimen and fixed hours for adults, and gene-

* Cubiculum sit temperatum, ad calidum tendens. Quamdiu lactatur in dorsum infans recumbat. Est enim dorsum tanquam in navi carina, totius corporis basis ac fundamentum. In latera enim si decumbat cum ossa sint mollia, periculum est gibbositatis. At cum jam dentire incipit simulque solidiori vesci alimento, quo tempore ossium compago solidescit, tunc sensim nunc in hoc, nunc in illud latus decumbere assuescat. *Rodericus à Castro*, p. 518.

rally see the good effects of sobriety, when they have the courage and prudence to practise it ; it is natural to believe, that following an exact method in relation to suckling of children, or giving them any other nourishment, will not meet with unsurmountable obstacles ; and it would be very useful, if people would give themselves the trouble to put it in practice, and resolve not to be discouraged at the beginning.

We cannot sufficiently blame those mothers, or those nurses, who incessantly incite their infants to swallow down milk, or any other aliment, under the pretence, that they have warm stomachs, and an easy digestion ; that they want them to grow and look fat, and that milk can do them no hurt ; and thus they, on every occasion, attempt by this means to appease them ; without considering whether these excesses are followed by vomiting, a looseness, the gripes, or convulsions. The weaker and the more delicate the stomach of the infant is, the greater should be the precaution used with respect to it : it ought to be allowed time to digest the nourishment it contains, and at the same time it should be considered, that it is not always disposed to perform that office. All the viscera have, as well as the skin, a time appointed for the discharge of their separate offices ; and they take the ready way to destroy the health, and overthrow the order that results from the connection of all their motions, who solicit them, without ceasing, and more particularly the stomach.

They who would not have children voracious, subject to a vomiting and looseness, to break-

breakings out, &c. ought, as much as possible, to prescribe a fixed rule for the time when infants are to be fed, and for the quantity of aliments necessary for them. It would be too little, were they suffered to eat only two or three times a day ; but their digestion would be more perfect, and their health much more solidly established, were they contented with giving them their nourishment five or six times in the twenty-four hours, and always at the same hour, or pretty near it.

C H A P. V.

Of the food of the infant.

THE beginning of the infant's life can only be reckoned from the instant of his birth. He cannot till then be considered as a distinct independent animal, that has a life of his own, *vivans vitam proprium*. This peculiar life supposes all the functions essential to the animal œconomy, those understood by the name of *vital*, and most of those distinguished by a division more nice than useful, under the terms *natural* and *animal*. But the important work of nutrition, is indisputably, of all the animal functions, the most vital, if I may be allowed the expression ; or at least, that which is most necessary to the preservation of life, if it is not to its absolute existence.

The nutrition then that is essentially necessary both to the adult and the infant, for repairing the losses unavoidably sustained by the play of their organs, and the change of a part of their humours produced by the motion ne-

cessary to life, is of farther use, with respect to the infant : it is by this that the growth of his body is produced, which is more necessary and sensible in the beginning of infancy, than in the following years. In reality, the tender and delicate organs of infants, the flexibility of their vessels, the softness of their bones and cartilages ; and, in a word, the state of their solids, which may make them considered rather as a humour imperfectly coagulated (the traces of which may be distinguished in some parts of the bodies of adults) than as a dense body that has a certain consistence : this state, I say, is most proper for the growth caused by the application of an analogous humour, furnished by proper aliment. The mild and balsamic humours of the infant, which are neither attenuated by exercise, nor the passions, are favourably disposed to this accretion.

We no longer find this analogy, nor this propensity to an union, between the organs and the nourishing lymph, when the first are become perfectly hardened in the adult ; and, in consequence of this, are absolutely degenerated from their original state. We may form an idea of this phænomenon, in the two cases, from the folder which perfectly enters two pieces of metal that are sufficiently softened, and can be of no use, if one of them still retains its ordinary density. The softness of the growing vessels on the two lips of a wound, which is absolutely requisite for their reunion, proves the necessity of this almost gelatinous consistence in the organs susceptible of increase. I am therefore firmly persuaded, that nutrition, with respect to adults, regenerates only their humours,

humours, and that the reparation of their solids is as imaginary, as that waste and decay which is supposed to render these reparations necessary.

As to the manner of explaining the growth of the body, by the unfolding of the vessels pre-existing in the embryo, it appears to me to be almost inconceivable, and to be plainly contradicted by all the phænomena of nutrition, by the reparation of the parts destroyed by accidents, and even by observations on generation, of which real nutrition, or growth, is only a continuation, as it would not be impossible to prove, if this question immediately belonged to our subject.

But let us leave all the hypotheses invented on nutrition, and proceed to a fact that is in its own nature more essential.

Whether there can be, in nature, an organized matter common to vegetables and animals, which serves for their nutrition and growth ; whether the body of the animal, or vegetable cannot be nourished, cannot grow and unfold itself, but by the application of this matter to parts so ductile as to yield to its arrangement, and swell and extend itself to a certain point ; whether this organical matter intimately penetrates the form of these parts which M. Buffon calls the interior mould ; and, in short, by whatever mechanism the work of nutrition, and the growth of our bodies, are performed, it is a certain and invariable truth, that infants have need of an aliment that can abundantly furnish a matter proper for the reparation of their humours, and the augmentation of their quantity, as well as for the

growth and extension, in every sense, of their organs, or solid parts.

This aliment ought still to be in a certain proportion to the organs that are to make use of it, and cause it to undergo all the changes necessary to its becoming true blood, like that which already circulates in the vessels of the infant, and to form a true nourishing juice, capable of being usefully applied to the solids which it ought to extend; for there is no aliment, however analogous it may be to our nature, that can produce a real nutrition, without being first subject to many elaborations in our bodies; without undergoing a certain change, caused by the action of digestion; by that of the different canals through which the chyle is carried into the mass of blood; and, in short, by the motions of the general system of the vessels and viscera, such as the heart, the lungs, &c. which seem to concur the most efficaciously to its last degree of perfection.

However, the modifications which the aliments, and the juice expressed from them, meet with in the different organs through which they successively pass; the mixture of the different humours they receive in some of them; and the separation of the useless parts which produce the excretions properly so called, do not constitute the only advantage to the animal œconomy, that results from these labours. We ought also particularly to consider the action itself of these organs excited by the presence of the aliment they are destined to work upon. This operation deserves our particular attention, since it more nearly contributes to the support of life, as an organical action, than

as

as preparing the matter for the reparation or augmentation of the humours and solids.

It is an incontestable fact, that the formation of the organs of digestion, and the determination of their action, by the mere presence of the aliments, serve to repair the strength of the body, and to preserve the vital motions, long before the aliment has been subject to an entire elaboration*. By uniting this second principle to the proceeding, it is easy to determine the choice of the substances proper for the nourishment of new-born infants.

The organs of digestion, and for producing the nourishing juices, are extremely delicate in children; these are machines that can be but imperfectly wound up, and are therefore incapable of any effort, or animal operation, that requires a support, or efficacious reaction, from the sides of the stomach; for this centre ought only to be gently solicited, and kept in a free, easy, and almost uniform action. An aliment easy of digestion, a mild liquor, containing many parts, truly nutritive, in a small bulk, will fulfil all the conditions required for nourishing an infant. Nature, therefore, who has provided this liquor for young animals, has not been less attentive to our wants; the milk secreted in the breasts of mothers, immediately after their delivery, is possessed of all these qualities. It is, in a manner, a chyle already formed, and seems to pass into the lacteal vessels, and the whole mass of the infant's blood, without too much employing the organs of

* See Specimen novi medicinæ conspectus, de M. de la Caze.

chyfication : in a word, its digestion ought to be performed without pain or labour; and it would be even entirely useless, if nothing but an absolute change of the aliments was required.

But, as we have already observed, that the perpetuity, succession, and reciprocation of the motions which constitute life, are principally founded on the action of the epigastric organs, which the aliment is destined to quicken, pass through, &c. it must thence follow, that the milk, on its having entered the stomach of new-born infants, becomes capable of soliciting, to a certain degree, the organs of digestion. Now, this nature has provided for, by the coagulation of the milk in the ventricle of infants. A leaven always present in their stomachs, which is the remains of the preceding digestion, is the instrument that produces this coagulation. What we shall here advance, on the effects of this leaven, is incontestible. The matter taken from the stomach of calves, kids, &c. which is every day used under the name of runnet, for curdling milk, is nothing else but this leaven, the remains of a preceding digestion. This, therefore, is a cause always capable of producing in the milk with which young animals are nourished, a change proper to correct its inertitude. In reality, the coagulation it suffers in their ventricles, before it is wrought upon by the digestive organs, must give it a certain degree of resistance proper to put in motion the epigastric viscera, &c.

It is therefore evident, that the milk designed by nature herself, for the nourishment of new-born infants, is an aliment adapted to the
weak

weak state of their organs, to the degree of action which their digestion ought to excite in the whole machine, and proper to furnish in abundance the nourishing juice they require to form the growth of their bodies.

We ought still to observe, in order farther to confirm the advantages milk has over other aliments, that nature has taken care to render it, on the first days, serous, purgative, and, in short, agreeable to the state of the infant, and the necessary evacuation of the meconium, and has afterwards pointed out its use, in a manner so evident, by giving it more consistence, in proportion as the infant gains strength, that people have generally followed what she has so plainly pointed out to them.

In a word, it seems to be so generally acknowledged, that young animals ought to be nourished by the mother's milk, that it might be imagined we have hitherto been entering into a vain and useless discussion, was it not also allowed, that the experience and industry of men have more than once corrected the pretended rules of nature. But, if they have discovered many, at least, very commodious methods of derogating from her first institutions, have not we a right to substitute, in the room of the use of milk, which is commonly followed by very many dangerous inconveniencies, another aliment that may agree with the delicacy of children's stomachs, repair, and encrease their strength. and be free from the defects with which milk has been reproached? Whatever has been advanced, in opposition to the pretended attempts against the laws of nature,

ture, has generally proceeded from a blind and misguided zeal *.

The industry of mankind, and the power of reforming, by the assistance of art, is also a present from nature; and the laying aside the use of this faculty, or taking her works rude and unformed, is not always obeying her laws. In a word, as we have made improvements in so many particulars, why may we not have the same advantage in regard to milk? Not but that we may draw very useful instructions from the example of animals, who being deprived of reason, cannot, like us, make laws for themselves, but constantly follow those of nature. Thus we are vindicated, and still vindicate ourselves; but this is after a mature examination, founded on solid observations, without being struck with the false idea of scrupulously following the indications of nature, or suffering ourselves to be seduced by the flattering attractions of our own vanity in reforming them. Being thus placed in this prudent mean, we shall examine the principal questions that present themselves on the subject of the nourishment of children. 1. Should they be nourished with milk? 2. Ought this to be woman's milk? and, 3. Ought it to be the milk of their own mothers?

As to the first question, what we have already said in favour of this nourishment, the constant use of it by all nations, the advantage that results from this use, which is not

* The use of fermented bread, and liquors, dressing of meat, bleeding, inoculation of the small-pox, &c. are so many proofs in favour of this manner of reasoning.

counter-balanced by any remarkable inconvenience; the indications even of nature, which, in regard to this point, are not contradicted by the well-established usefulness of any different method : these reasons, I say, are sufficient to convince us, that the most certain and agreeable nourishment for children, at least, that whose advantages have hitherto been most known, is to be found in milk diet in general. I have therefore mentioned this question, only because Van-Helmont, to whom few persons have a right to refuse the title of a great physician, and whose truly medicinal opinions are evidently stamped with the marks of a creative genius : I have done this, I say, only because Van-Helmont has attempted to proscribe the use of milk, at least as a regimen proper for long life ; and, because he has supported his pretension on an example *, which, as it is only a single instance, cannot be regarded as sufficient to merit the preference to a method that is almost generally received : However, as there is no danger in trying what he has proposed, we may be convinced of their greater or less usefulness by new experiments.

Van-

* Hoc pacto filium comitis, inter cæteros nutriri jussi à nativitate, qui tres fratres robore, sanitate, staturâ, ingenio, omnique valore longè, superavit, adeòque, nisi in bello pugnaci manu glande transfossus occubuisset, magnæ spei erat. Enimvero ut præfatus cibus potusque, est innocuus, non putrescens, non coagulabilis, non contumax digestioni (putrescunt enim faciliè quæcumque ab animalibus petuntur tenerioribus stomachis) ut neque malignitatis particeps, vel alienæ perturbationis instabilis, aut inductæ vitiøsæ impressionis hæres : ita semper sibi æqualis, par & constans, naturæ fit familiarissimus, non vermiculosus, non acer, putridus aut nidorosus, non denique acer, acutus, febriculosus,

Van-Helmont advises feeding children with a kind of panada, made of bread, slightly boiled in small beer, and sweetened with clarified honey, or sugar, the whole being reduced to the consistence of a jelly, and at length diluting it with a sufficient quantity of small-beer, to the end, that this preparation may also serve for drink. “Laudo, says he, pro puero non
 “stro alimenta quæ pane tantisper in tenui cerevisia bullito, cum melle despumato, fin
 “minùs saccharo, instituitur, donec simul in
 “mucilaginis aut collæ speciem, sive gelatinam devenerint; huic tunc tantumdem tenui
 “cerevisiæ miscetur quantum satiss, ut potùs
 “loco inserviat.” *ibid.* He condemns the use of milk from the following arguments: 1st. because it easily turns sour, and then occasions very dangerous distempers: 2dly, because it transmits to infants, not only the diseases of nurses, but even their vices: 3dly, because nurses do not leave off suckling their children as soon as they are pregnant: 4thly, because they are almost always obliged to add other aliments to the use of milk, on account of the smallness of its quantity: 5thly, because the most healthy and sober nurses are exposed to passions, more or less violent, to terrors, me-

briculofus, imo nec unquam nocuus, licet quantitatem excesserit, nam plus minusve dilui potest. Adeoque & sine morbis crescit, adolescitque infans, & fit capax remedii ad vitam longævam. Non ergo etiam malè juxta litteram de Messia ter-glorioso. Incarnato legitur, quod mel & butyrum comedet. Unum, siquidem continet gloriam roris cum extracto florum; alterum verò omnium penè herbarum est magisterium. Butyrum ergo, non autem lac, comedet. Unde discretio boni à malo & judicii acumen promittitur.
Van-Helm. de Nutrit. infant. ad vit. long.

lancholy,

lancholy, and all the affections of soul capable of changing and corrupting the milk, or of suppressing, and considerably diminishing its secretion, &c. These are the express terms of the author, which deserve to be inserted at length : “ Non itaque me naturæ injurium autumo, si insolitum alimentum lacti prætuleris. In lacte siquidem plurima ingruunt incommoda. Imprimis lac grumescens vomitiones frequentes, vermes, tormina, febres, diarrhæas, epilepsias, convulsiones per sæpe profert, multasque necis inopinæ occasiones continet. Lac enim in stomacho, proprio loci fermento obediens, necessario acescit ; antequam in alimentum vertatur ; cui si novus succedat lactis suctus, durus tenello stomacho lactis grumus incumbit, qui in glebas occalescens, caseum mentitur tenacem, non secus multò atque lac intra ubera non rarò concrescit & nonnisi cum apostemate erumpit. Quod cùm digestionì pertinaciter resistat, si non etiam valdè nocuum fuerit, mox saltem putrescit, amaricat, flavescit, viridescit, nidorem contrahit, & pylorum alienat : unde præfatæ morborum clades sæpe excitantur. Infans enim dudum fugit, frequenter repetit. Lac primum est coagulatum, aliud recens intromittitur tertio sextoque, fit commistio omnium, acidumque præter naturam alienum concitatur ejulatibus, fitque coagulum commune ex omnibus. In quo heterogeneitas manifesta, sequitur que recens suctum, symbolum caseati, nidorosi & putrefacti. Hæc vitia sunt ferè inevitabilia, suntque peccata lactis materialia, quæ recens foetus editus ex origine piare incipit,

“ quasi

“ quasi ab ortu mater insidias mortisque com-
 “ minationes suo infantulo struat. Sunt infu-
 “ per alia lactis crimina occultiori tabo pern-
 “ ciosa. Nimirum nedum lues veneris, lepra,
 “ pestēs, febresque contagio infames suguntur
 “ à nutricibus ; verùm etiam inuritur puero à
 “ cunis propensio morboſa nutricum, non se-
 “ cus ac si hæreditaria eſſet. Certè character
 “ in vitam deplorabilis. Novi quemdam Præ-
 “ fidem sextâ sanâque prole beatum, cui ter-
 “ tia (quod nutrice aleretur renum calculo sub-
 “ noxiâ) luctuosâ lithiaſi, anno ætatis ſuæ 13,
 “ tertiâ ſeſſione ſub lithotomo finivit. Deni-
 “ que non ſat eſt morbos materiales lactis, oc-
 “ cultas tabes morborum, radiceſque hæredi-
 “ tarias per lac in ſugentem tranſplantari &
 “ pertinaciſſimè in vitam incorporari ; verùm
 “ etiam vitiorum quorumcumque ſementa mo-
 “ ralia cum lacte intrò penetrant, & in vitam
 “ perſeſeſerant. Obſervavi ſic, nutricem ſala-
 “ cem, furtivam, avaram iracundamque, ſuam
 “ fragilitatem tranſtuliffe in pueros. Sic info-
 “ lita in familias ſtupiditas, ira, dementia,
 “ multaque animi pathemata (etiam præter de-
 “ ſectus morales) dudum ſomniantia, ac tan-
 “ dem dierum ſub maturitate explicata prode-
 “ unt, à nutricibus mendicata, & per lac pro-
 “ pagata. Tum demum lac in nutrice adhuc
 “ obnoxium eſt, ut cadaver eſcat, ſi nutrix clan-
 “ culum imprægnata eſt, participet de febribus
 “ & malis quæ nata ſunt lac quomodo libet in-
 “ ficere. Tandem in horas lac varias impref-
 “ ſiones ſubit, ex omnibus animi perturbati-
 “ onibus ; unde nedum grum eſcit putrètque,
 “ ſed & non ſenſili qualitate induit difformita-
 “ tes quas infans bibat atque piare te-
 “ netur.

“ netur. Non enim nutrix uno semper tenore
 “ animum frænat, mille sed apprehensionibus,
 “ iræ, tristitiæ, agonix, invidiæ, lasciviæ, fur-
 “ ti, avaritiæ, &c. perculsa succumbit, qua-
 “ rum singulæ, est in dubitum, quæ lac male
 “ disponant tam quoad corpus, quàm ani-
 “ mam. Inevitabiles enim sunt pleræque, pe-
 “ riculosæ tamen,” *Ibid.* It must be confessed,
 that most of these inconveniences, arising from
 the use of milk, really exist. In my opinion,
 there is but one of the faults imputed to it by
 Van-Helmont, that it may not justly be charged
 with ; I mean that spontaneous coagulation, or
 curdling, caused by the acid contained in the
 stomach, which milk is always subject to be-
 fore it digests, when the body is in a healthful
 state, and which ought to be regarded as the
 natural change of that aliment.

Thus, that part of the reasoning of this au-
 thor, founded on the mischiefs that too fre-
 quently follow the use of milk, will not admit
 of dispute ; but the consequence he draws from
 it, that the practice of giving it to children
 ought to be laid aside, we shall be more cauti-
 ous of admitting. We believe, we have suffi-
 ciently fulfilled the duty we, in this respect,
 owe to society, by declaring the inconveni-
 ences attending a practice, which people in ge-
 neral do not think it possible to abolish, and
 to introduce a better in its stead. We ought,
 however, still to observe, that the qualities at-
 tributed, by Van-Helmont, to his jelly, cannot
 be set aside by any solid reasoning ; that the
 knowledge of natural philosophy, inductions by
 analogy, and observations of nearly the same
 nature, are greatly in favour of what he ad-
 vances ;

vances ; and that nothing is wanting to establish his method, in the strictest manner, but the advantage of its being confirmed by a sufficient number of particular facts ; and, in a word, by medicinal experiments. Indeed bread, with honey, or sugar, reduced to the consistence of a jelly, and diluted by a sufficient quantity of a proper liquid, by water, for instance, which in France takes place of Van-Helmont's small beer, constitute a nourishing aliment, easy of digestion, and not exposed, like milk, to the alterations that depend on the air, or to the diseases and passions of the nurse who prepares it.

The beer, used in the composition of the jelly, on being boiled with the bread, leaves nothing but water, and a small quantity of tartar, very analogous to the salt of milk ; and the ebullition having dispersed the spirituous parts, that liquor is a very proper ingredient in this jelly.

I repeat, in two words, that such an aliment must appear preferable to milk : the wisest considerations, those most abstracted, those clearly drawn from our physical knowledge of both these aliments, are doubtless, favourable to the first ; but in medicine, experiments ought always to be carefully consulted. It is not sufficient that it is not contrary to a method founded on the most evident reasons, it must be directly advantageous ; for reasoning alone can never be the foundation of medicinal precepts : therefore, since these experiments are still wanting, we cautiously avoid deciding the question.

As to the second point, Whether infants ought to be nourished with women's milk ? it may appear,

pear, perhaps, as useless as the preceding, to those who do not know, that all the people in the north feed their infants with cows milk; and that it is universally allowed, that these people are stronger, and less subject to diseases, than the southern nations. This fact, it is true, does not prove, that they owe these advantages to the nourishment they receive in their infancy; but it, at least, evidently proves, that this food is not prejudicial. The practice of giving women's milk to infants, is wholly unknown in Muscovy and Iceland. In this last country, infants, soon after they are born, are left all day, by their mothers, lying on the ground, near a vessel filled with milk, or whey, in which is put a tube, the upper extremity of which, the infant knows how to find, and putting his mouth to it, sucks whenever he is oppressed with hunger or thirst*. The infants of this savage country much more frequently escape the dangers of infancy, than amongst us: But, supposing that their strength and better health, in all the stages of life, depend on other circumstances; as, for instance, on the nature of the climate, or the health of their

* Infants suck but eight days, or about fifteen, if they are sick. At length they lay them on the earth, and place, by their sides, a small vessel, stopped and filled with warm whey, with a small pipe twisted round with thread, or the barrel of a quill, and at their sides a little bread, if they can get it. When they awake, or shew signs of thirst, they turn them to the side where the vessel stands, and put the tube in their mouths to make them suck their nourishment. When they are carried abroad, either to be baptized, or on any other occasion, they put into their mouths a piece of linen dipped in whey; on their being nine months old, they eat every thing that is given them.

parents, which is superior to ours, from the constitutions of half the people amongst us being weakened by luxury, debauchery, &c. it is certainly true, that their method of feeding children with the milk of animals, is evidently not dangerous, and that it is, at least, attended with as happy effects as that of giving them women for wet-nurses.

The pretended analogy between the milk of females of what kind soever, and the organs and humours of the young animals of the same species, was it as solidly established as the common opinion supposes it to be, can never furnish any other but weak arguments in favour of women's milk, since experience does not intitle us to give the preference to this last. But this analogy hitherto subsists only in opinion, and has never yet been proved ; in this particular, it is like many other theories in medicine, and more especially those on the virtues and choice of aliments and medicines. We have not therefore, at present, any good reason to oppose the use of cows milk, substituted in the room of that of women, especially where there is a convenient method of making it first pass into the infant's stomach, in the same manner as he receives it from the nipple, that is, by little and little, mixed with the saliva, by suction. Nothing more is here to be done, but, according to the customs of the north, to make the infant suck the milk through a tube, fixed to a small sponge, or a bit of linen loosely rolled together. The many children fed in this manner in the country, or with no very essential difference, and very happily brought up, are a convincing proof of the goodness of
this

this method, which cannot, as we have already observed, be followed by any inconvenience. But farther, a great part of the ill consequences laid to the charge of milk, which we have related from Van-Helmont, can only be imputed to women's milk, and not to that of cows and goats; I mean here, the ill effects proceeding from constitution, caprice, passions, or the nurse's being with child. Now, the number of inconveniences that depend on these, and the like causes, is immense, and almost all of them, are either attended or followed by some danger to the infant. Another advantage we should find from depriving women of the employment of suckling their children, would be the employing, for the multiplication of the species, the whole time in which all the women in the nation continue fruitful; and taking away that power of continuing barren, which nurses possess, during two thirds, at least, of the time proper for generation. This loss is, indeed, immense; but it may be remedied in a very easy and simple manner, by destroying this general custom, and abolishing the state and office of nurses. Another advantage, which would indeed, though less extensive, be as real, and more medicinal, is the certain means we should have, by prudently joining this method with Van-Helmont's, of preventing the accidents occasioned by weaning. It would be easy to make the infant pass, by insensible degrees, from his pot of milk to his bason of panada, which we might make him abandon in its turn, with the same facility, and without having the least reason to apprehend his being so fond of

either, as to be separated from it with grief, as from his nurse's breast.

But changes, especially of this nature, are seldom adopted by a great nation, on even the reiterated advice of persons, destined by their office, to give the public such observations as may lead to their embracing them. They ought, therefore, to wait patiently, till they are assisted by the authority of the prince, and for a proper time and favourable circumstances, without letting slip the occasions that may, at a distance, contribute to these happy revolutions ; and this, with the same ardour, as if their zeal was to be rewarded by an immediate and more certain success.

If we were disposed to enter into a particular account of popular errors, we might even flatter ourselves with one day seeing the success of the useful change we now propose. Many other prejudices that seem raised to stand unshaken, since they were believed to be equally pointed out by nature and religion, have, at present, no existence. We shall relate on this subject the following anecdote.

“ One day queen Blanch had a violent ague
 “ fit, which lasted for a considerable time ; a
 “ lady of quality, who, to please or imitate her
 “ majesty, suckled also her child, seeing the
 “ little Lewis cry for thirst, resolved to give
 “ him the breast. The queen, on her recover-
 “ ing from this fit, demanded her son, and pre-
 “ sented him her own ; but the young Lewis,
 “ whether he was fully satisfied, or whether
 “ the inflamed milk was distasteful to him, af-
 “ ter his before having had the breast as often

“ as

“ as he pleased, refused to take it. It was
 “ not difficult to guess the cause, and the queen
 “ immediately suspected it. She pretended to
 “ be under some pain about thanking the per-
 “ son to whom she was obliged for the good
 “ office done to her son, during her illness;
 “ and the lady believing, that she had now an
 “ opportunity to make her court to her ma-
 “ jesty, confessed, that the prince’s tears had
 “ so sensibly moved her, that she had been un-
 “ able to avoid applying the remedy. But
 “ the queen, instead of returning an answer,
 “ gave her a disdainful look, and thrusting her
 “ finger down her son’s throat, obliged him
 “ to throw up all he had taken. This violence
 “ filled all who saw her with astonishment,
 “ when, to put an end to it, the queen said,
 “ that she could not endure the thought that
 “ another woman had a right to dispute with
 “ her the quality of a mother. So firmly were
 “ they then persuaded, that the nourishment
 “ of infants was part of their education.” *

The third question, Whether every infant
 ought to receive its nourishment from its own
 mother, will appear much more natural than
 the two preceding, though it passes as absolute-
 ly determined, and the general cry is for the
 affirmative. The advice of moralists, as well
 sacred as profane, the speculations of politici-
 ans, the declamations of our authors and co-
 medians, the writers of our romances, the pre-
 judices of men-midwives, and even the senti-
 ments of many physicians, unanimously express
 their disapprobation of the inhumanity, the op-

* Varillas on the minority of St. Lewis, p. 10. cited by
 Bayle, in Vol. I. p. 804. the first edition.

position to the institution of nature, and the other crimes with which the mothers are so much reproached, who trust the suckling of their children to the care of strangers. All of these, at least those who have reasoned closely on the subject, have employed almost, without distinction, philosophical and medicinal arguments, drawn from the consideration of the health both of mothers and children, and especially those relating to moral inconveniences.

Without entering into the discussion of those advantages, or unhappy effects that are merely moral, and which, but indirectly belong to our subject, we shall content ourselves with representing what may be said for and against those that are medicinal; that is, we shall principally examine, what kind of medicinal advantages infants may obtain from their mother's milk, and what mischief may be feared, in regard to their health, when they are deprived of this nourishment.

In the first place, the ill effects which Van-Helmont has attributed to women's milk in general, and which we, after him, have already pointed out in the examination of the two preceding questions, have been attributed to the milk of foreign nurses, even by those who have been the strongest advocates for infants being suckled by their own mothers; but, in my opinion, they have not sufficiently reflected, that the same ill effects may be derived from the mother's milk. These consequences have two principal sources, the health of the nurse, and her passions.

As to the first source, it is not sufficiently considered, whether we have any reason to suppose,

pose, that the mother who commits her infant to a foreign nurse, has better health than the nurse herself. The women who observe the practice of not suckling their own children, are found to belong to the class of citizens, who commonly enjoy a less perfect degree of health; and on the contrary, mercenary nurses are taken from an order of people that is commonly blessed with good health. There is, however, in this respect, a distinction to be made between the foundation of that health, the strength of constitution, the actual state in which the nurse, who is chosen, is found, and that in which we may flatter ourselves that she will persevere during the course of the time in which she is to suckle the infant; because this last depends on a certain regimen, which ease may better procure than mediocrity, and which poverty can never permit. As to the constitution, it is not to be doubted, but that, in general, the wife of the peasant, or of one of the common people, has, in this respect, the advantage over the lady of rank, the rich citizen's wife, or those who enjoy a less degree of affluence; for, none but these have the power of getting rid of the trouble of suckling their own children. These are generally weak, and delicate; they are frequently too young, and are much more exposed than the peasants, to hereditary, or communicated diseases. In short, when we would make use of foreign nurses, we have the convenience of chusing the most healthy, and rejecting those that are not so.

In regard to the constancy of health, as it depends on regimen, there is more than one observation to be made. We ought first to di-

distinguish foreign nurses into domestics, and those who live out of the house. The fear of the inconveniencies arising from a bad regimen, can only take place where nurses live in their own houses, since a mother may procure for a domestic nurse, the same advantages she enjoys herself. It must be confessed, that these inconveniencies are common, and the more to be feared in proportion to the nurse's poverty; and there are even but few ways of preventing them. The peasant's wife is commonly but ill fed, she works hard, sleeps little, &c. in this respect then, the mother, and the domestic nurse have manifestly the advantage: But the domestic nurse has the advantage of the mother; for she has all the conveniences the mother can procure her, and is not, like her, exposed to a thousand faults, in relation to regimen, which arise from the station of most of these mothers, such as late hours, play, faults in relation to sobriety, excess, &c.

As to the second source, the alterations made in the milk, by the passions, it evidently appears, from experience, and the nature of things, that women who live, or are educated in the midst of plenty, are much more fruitful in these, than the wives of the common people. Education multiplies the objects of the sensations, and consequently the sources of the passions. As to the constant causes of certain passions, and of those dispositions that are deeply inherent, which furnish matter for vicious irregularities, and whose influence by the milk may be deduced from many observations, it is evident, that they exist nearly in an equal degree in all stations. This is an affair that
falls

falls within the notice of our experience. It is only observed, that the vices of different stations are not the same, and that they are made nearly to compensate for each other, in relation to their influence on the animal œconomy. Thus the woman of an elevated rank is not subject to the shameful vices that are indulged by the common people; she will neither eat to excess, be drunken, nor choleric, &c. nor will the woman, amongst the lower people, be so commonly given up to ambition, love, envy, an extravagant fondness for play, to late hours, inward disquietude, &c. Now, these latter passions are more prejudicial to the health, than the former. We have seen peasants addicted to the vice of drinking wine to excess, who have nevertheless made excellent nurses*; and I do not believe that we have a right to expect the same advantage; or, to speak more properly, the same security, from a woman successively exposed to all the violence of desires, vexations, fancies, caprices, and all the other strong and powerful affections of the soul, from which the vulgar are excluded.

A second pretence, in favour of the use of the mother's milk, is founded on a philosophical consideration, and rests on a certain imaginary analogy between the milk of each mother,

* I myself, for a year and a half, sucked a woman of this kind, and I can safely say it, with the greatest success, both with regard to my strength and good health. But this observation ought no more to give credit to nurses drinking wine to excess, or even to its moderate use, than the example of some drunkards, who live for a long time exempt from all kind of infirmities, ought to bring drunkenness in general into reputation.

and

and the infant of which she is delivered. I say imaginary, because no-body, that I know of, has proved it, or even established it by a reasonable presumption.

M. Buffon seems to have adapted the prejudice generally entertained in relation to women's milk. How robust soever the infant may be, there may, according to him, arise great inconveniencies from giving them any other nourishment, besides the nurse's milk, before the end of the first month : but, how does this reflection agree with the observation made by the same author, almost immediately after ? I have known in the country, says he, some peasants who had no other nurses but ewes, and these peasants were as strong and vigorous as others. But, 1st. we find few children deprived of women's milk, at the month's end, who are not fed with the milk of goats, cows, &c. and this without any inconvenience, in relation to health. 2dly, In very extraordinary cases, where milk is wanting, the infant is in no danger of losing his life, provided that care be taken to substitute another nourishment properly prepared, and proportioned to the delicacy of his organs. In short, though it should even be proved, that infants nourished at the end of one month, with any other aliment, besides their nurses milk, grew considerably lean, should we have a right to attribute their leanness to the want of milk ? Van-Helmont, from reasons deduced from an analysis of the different kinds of milk, prefers that of asses to all others, and even to that of women. *Qua propter etiam, says he, lac muliebre, quanquam nobis sit*
simili-

simillimum, proximum, muniale, & nutritium, attamen cedit asinino ob longævitatē.

Dionis is guilty of a very great absurdity, when he advances, that while a mother suckles her own child, he is contented with a smaller quantity of milk, than when he is suckled by a stranger. And more positively still, in the same work, that with half a septier of the mother's milk a day, he will grow faster, and be in better health, than with a pint of the milk of a strange nurse, let it be ever so good.

We must however confess, first, that the age of the milk ought to be proportioned to the age of the infant to whom it is given. An old milk does not agree with a new-born infant. That serous milk, known by the ancient physiologists, by the name of colostrum, secreted in the breasts of women soon after their delivery, agrees admirably well with the infant that is but newly born, and is usually proper, as we have already observed, to facilitate the excretion of the meconium; now it must be extremely difficult to find a milk of this kind in the breasts of a nurse, who, in the most common cases, has suckled her own infant eight or nine months, and always too long for her milk to be perfect. We must, however acknowledge, that this serous quality in milk, is not absolutely necessary for the expulsion of the meconium, since the want of it may be supplied by whey, the oil of sweet almonds, &c. 2dly, It has been observed, that sometimes a particular milk is improper for a particular child, who finds a salutary nourishment in that of another nurse; though the milk of the first may agree very well with another infant; but these cases, however, are very uncommon,

common, and the success in changing the nurse depends much oftener on the real badness of the milk that was left, and of the goodness of that preferred to it, than of an agreement or disagreement between either of these milks, and the child's constitution: it also happens, almost as often, that the infant passes with advantage from the milk of its mother to that of a stranger. This observation is therefore of small weight, since nothing can be determined from it, in relation to the choice of either of these methods.

It evidently appears then, from the foregoing considerations, that the advantages and disadvantages of having foreign nurses, are nearly equal; however, from the above observations, we may draw the following general rules: 1st. That the mother, who besides the advantages of fortune, has those of a confirmed and vigorous state of health, kept up by a good regimen, a life tranquil, well regulated, and exempt from passions, is preferable to any foreign nurse. 2dly, That this last, ought, on the contrary, to be absolutely preferred to a mother that is weak, delicate, given up to her passions, and even to that kind of life which is commonly practised by women in easy circumstances. 3dly, That the domestic nurse is always preferable to a nurse abroad, and that, in hardly any case, she is inferior to the mother. 4thly, That when under the necessity of having recourse to a nurse abroad, or in the country, we ought to chuse her that is the least oppressed with poverty.

It is still proper to observe, that it is to be presumed, a mother will take better care of her
infant,

infant, than a mere hireling. The tenderness of which we must suppose her to be possessed, will not permit her, like the latter, to be suspected of a negligence pernicious to the infant, who by its tender age is exposed to a thousand dangers. It is then to be wished, that the small number of mothers, who have the requisite degree of health, leisure and equanimity, would suckle their own children. This, methinks, would produce an advantage of another kind, a mutual attachment between mothers and their children, and consequently a stricter union in families. Some have imagined, that this reciprocal attachment is not merely the effect of living together, but that it is a material property of the milk. This phænomenon, if it really existed, would indisputably be to our purpose; but it is not established with sufficient solidity; and appears to be only the effect of prejudice. Among other observations, that seem to favour this supposition, it has been observed (and the fact is really striking) that families are not so closely united at Paris, as in the country; and that more particularly in that city, there is but little appearance of maternal love to be found: but it has also been observed, that there is nearly the same difference between Paris and the provinces, in relation to the mutual affection between grandmothers and grand-children, aunts and nephews, and even the male relations of the infant. We cannot therefore sufficiently perceive the influence of the mother's milk; but are here obliged to have recourse to causes posterior to the suckling of the infant, or that are absolutely foreign to it, as well as to our subject.

But

But this last discussion ought not to raise the supposition, that we admit the absolute use of woman's milk, and still less, that we are inclined to give it the preference to the two other methods already mentioned, viz. nursing the infant with cow's or goat's milk, and with the panada of Van-Helmont; on the contrary, we repeat, in favour of both these methods, that nothing but the regard due to experience prevents our publicly declaring for one of them. Moreover, the custom of causing infants to be suckled by women, whether it be by their own mothers, or by foreign nurses, is not on the point of experiencing the change which the considerations we have proposed, may one day lead to. It is not even permitted, that those whose lives are peculiarly precious, that princes should be permitted to make use of this method, while it can only pass amongst us for an experiment. It therefore becomes a necessary part of our subject to set down the qualifications of a good nurse, and the regimen she ought to observe.

We cannot give more certain rules, on the choice of nurses, than by making known the qualifications physicians require in those destined for princes. It is only for these precious infants, that this choice has been closely enquired into, and established on the judgment and successive observations of the most able persons of the profession. This method the men-midwives, and different authors, who have treated on this subject, have inserted in their books, and thus communicated it to the public. I have thought it necessary to derive it from its source, and what follows is what has been

been communicated in a letter to me by M. Marcot, first physician to the duke of Burgundy.

“ **Y**OU demand, Sir, a particular account
 “ of the regimen observed by the chil-
 “ dren of France, during the time of their
 “ sucking, and when they are weaned. I must
 “ inform you, that it is my method, when they
 “ have a good nurse, to have them nourished
 “ with milk during the first year. Thus we
 “ have managed, in regard to the duke of Bur-
 “ gundy, who has not yet taken any other ali-
 “ ment besides his nurse’s milk, and who thrives
 “ very well. We are going to begin giving
 “ him spoon-meat. There are, however, cases
 “ in which we are obliged to deviate from this
 “ rule ; for example, when the nurse has too
 “ little milk, or it is not sufficiently nourish-
 “ ing ; which has been the case, in relation to
 “ the princess, who has unhappily fallen into
 “ the hands of bad nurses. Here we have been
 “ necessarily obliged to have recourse to spoon-
 “ meat, from the insufficiency of the milk.

“ The children of France are usually wean-
 “ ed at eighteen or twenty months old, when
 “ they have a good state of health, and
 “ have about fifteen or eighteen teeth. We
 “ take care, before they are weaned, to make
 “ them take broth, and weak soup crumed
 “ with bread, to accustom them to solid ali-
 “ ments. The nurses ought to be fed with ali-
 “ ments that have good juices, and are of easy
 “ digestion, as with soup, boiled and roast
 “ meat : they ought to observe rules of mo-

H

“ deration,

deration, and to abstain from fruit, salads,
and ragouts.

We chuse them as near as possible to the
age of twenty-five years, of a good constitution, and free from diseases. We give the preference to those of a brown complexion, who have white teeth, firm and red gums; and, in a word, to those who have a sound mouth, and no rank smell under the armpits. In order to be admitted, they must have nursed at least one child, and those who have not are rejected, whatever good qualities they may have beside. We reject those who have the menses while they suckle: but if the suckling of the infant is advanced, and he is in good health, we let her finish suckling him, though her menses should appear. We seek for nurses who are gay, lively, and in good plight, who have firm breasts, terminating in the form of a pear, and her nipples, and indeed all the rest of her person, well proportioned*.

The milk, in order to be esteemed good, must be white, full of cream, cool, sweet, and of a moderate consistence. If it be too serous, or too thick; if it be yellowish,

* It is supposed, that the women whose breasts are not perfectly round, but in the form of a pear, are the best nurses, because an infant may then take into its mouth, not only the nipple, but also a part even of the extremity of the breast. As for the rest, the breasts of women, in order to be well placed, must have the same distance between one nipple and the other, as there is between the nipples and the middle of the hole, or dimple of the clavicles, in such a manner as these three points make an equilateral triangle.

bluish,

“ bluish, salt, hot, or in a small quantity, these
 “ nurses are excluded.

“ The proofs commonly made to ascertain
 “ the quality of the milk, are, tasting it, and
 “ letting a drop fall into the eyes, when, if it
 “ makes the eyes smart, or does not leave a
 “ sweetness on the tongue, it is good for no-
 “ thing. We assure ourselves of its consistence
 “ by the sight, on letting a little of it run into
 “ the palm of the hand, and at length stroking
 “ the other hand upon it ; by this it is known
 “ whether the milk is of a proper consistence ;
 “ that is, whether it has that degree of visco-
 “ sity which is required. By this means we
 “ also judge, whether it be too cold or hot ;
 “ but it is proper to observe, that the hand
 “ should be placed very near the nipple, in or-
 “ der to be sure of the degree of the milk’s
 “ heat ; for if the hand is at a distance, the
 “ milk will be cooled in its passage by the im-
 “ pression of the air.

“ In regard to the precautions taken to rock,
 “ clean, and swathe the infant, these are com-
 “ monly trusted to the prudence and address of
 “ the rockers ; but they are in general to take
 “ care of placing properly the infant’s mem-
 “ bers, that they may not, in so tender an age,
 “ take an ill bent, which is afterwards so
 “ difficult to correct. They should also ob-
 “ serve, that the bandages are neither too loose,
 “ nor too tight. They remove them oftener
 “ or seldomer, just as the infant is fouled ; and
 “ proportion their cloaths to the degree of
 “ heat or cold. It is better, however, for the
 “ infant to be covered too warm, than not warm
 “ enough. Infants require much sleep.

“ There are many other observations to be
 “ made on this subject ; but these are the prin-
 “ cipal. I intreat you then, to be satisfied
 “ with the particulars I have the honour to lay
 “ before you, and that so much the more, as
 “ I can say nothing to you, which you have
 “ not thought of before me.”

“ I am, &c.

“ M A R C O T.”

Among these qualities there are some absolutely necessary, as the confirmed health of the nurse, a sufficient quantity of good milk, and a certain regularity of conduct ; and there are others that procure but small advantages, which, however, are not to be neglected in favour of a prince ; but the want of which, common citizens are usually forced to overlook, such as the nurse's age, the circumstance of its being the first or second infant she has suckled, her being more or less fat, the particular form of her breasts, the age of the milk, some slight passions, &c. The disorders opposite to the qualities of the first class, ought then absolutely to exclude a nurse, and even the infant's mother : these are a scropholous, scorbutic, or venereal virus, the phthisic, a disposition to a fever, and most of the other chronical diseases ; too small a quantity of milk, or a too great depravation of it, as its being absolutely serous, or its being evidently unfit for nourishment from some less sensible quality ; the nurse's being known to be with child, a propensity to gluttony, the being choleric, a drunkard, &c.

We

We can in no case be reduced to make use of the milk of such persons as these, since, supposing that we were under the absolute want of all other nourishment, there would always be left the milk of animals. We ought, as much as possible, to procure the advantages that depend on the second class, but the contrary inconveniences are not sufficient reasons of exclusion: we ought only to endeavour to compensate for them by other advantages, and to accommodate ourselves to them only from the impossibility of making a better choice. If we found, for example, a nurse perfectly healthy, who had plenty of milk of the consistence and taste required, we should not reject her, because she is fair, or a little too lean; for its being the first time of her suckling, for her having been delivered six or seven months before, for her being a little addicted to anger, love, &c.

Moreover, was it proved, that among the last, there was one who had all these qualities, and that the mother was absolutely deprived of them, it seems as if the very title of mother ought to counter-balance them, and make her deserve the preference.

Let us now pass to the regimen of nurses. In the first place, they ought to make use of such aliments as are of an easy digestion, and of such a nature as to give no room to fear a vomiting and looseness; these ought to contain but little salt, and little of any kind of spice, and be capable of furnishing a sweet and plentiful chyle, that can only excite the organs in a moderate degree; which being directed without labour and irritation, will let the whole machine enjoy that equal and moderate motion,

so favourable to the preservation of the natural order of the secretions, to the good qualities of the humours, and to the perfection of the milk.

These aliments are broth, the jelly of meat; fowl, roasted or boiled; butchers meat, roasted, boiled, or broiled; such game as contain a good juice, as partridges, quails, woodcocks, the insalubrity of black meat not being yet well demonstrated; eggs; farinaceous meats, as rice, peeled barley, vermicelli; such roots, greens, and pulse as are truly nourishing, as turnips, lettuce, pease-soup, lentils, beans, &c. certain fruits, the use of which has been found favourable to health, as grapes, peaches, apples, and pears, either from the tree, or baked with sugar, &c. Nurses should, on the contrary, abstain from all flesh that is coarse, hard and difficult of digestion, such as pork, wild boar, the heart and kidneys of large animals, and the gizzards of birds; she should eat little or none at all of ragouts: nor should she eat salads and green fruit; or those that by observation have been found to be dangerous; as for instance, apricots, plums, almonds, nuts, melons, and figs, are absolutely forbidden them. It is prudent not to permit them to drink milk; for the use of milk with any other aliment is never without danger. Physicians very unanimously agree, that the most certain method of making use of this aliment medicinally, is to order it for the whole nourishment. But a nurse cannot be reduced to such a regimen, as well because it would not produce a sufficient quantity of nourishment, as because it would be unnecessary to impose so severe a diet, without any
real

real advantage ; for the analogy between the milk that served for the nurse's aliment, and that secreted in her breasts, can be neither more nor less than a delusive presumption in favour of milk, that ought necessarily to yield to the observations by which it is contradicted : it will be sufficient to make a person intirely renounce this opinion, if he observes, that the milk that is just swallowed, undergoes in the stomach, and the other organs of chylication, the same changes as any other aliment ; that it furnishes a very considerable quantity of excrement ; and that therefore it cannot be considered as a matter more proper, more abundant, and more analagous to the milk of the nurse.

It is impossible to give general rules on the moderate use of wine, coffee, and chocolate. Custom commonly renders them so indifferent, that we cannot see that any advantage would arise from forbidding the use of them to a nurse who has been accustomed to drink them, and who has no disorder that can be reasonably imputed to the use of them.

The choice of the nurse's aliments being fixed, nothing more is to be done but to regulate the quantity, and determine the number of her meals. We find that we are here obliged to combat a prejudice very generally received. Almost all nurses imagine, that it is very healthful to eat much and often : They pretend to draw two advantages from this double fault in their regimen ; and flatter themselves, that by the first they procure a greater quantity of milk ; and by the second, that they constantly obtain a fresh and new supply : But, besides

the general inconveniences of repletion, and the frequency of repasts, in relation to the work of digestion, and even the secretion of the milk, it is not true, that the quantity of the milk is in proportion to the quantity of the aliments. A mass excessively large of alimentous matter, can be but imperfectly digested, and consequently must furnish much excrement, and little chyle. The repasts being too frequent, must necessarily disturb the order of the natural functions; and this must affect the secretion and elaboration of the milk. The belief that fresh milk, or that produced by a meal taken a short time before, must be more salutary than that which is furnished by a digestion performed at a greater distance of time, is absolutely contrary to experience; for it is evident, that the milk which an infant sucks in the morning, when the nurse has not eaten for nine or ten hours, is as good as that she gives it a short time after she has taken refreshment. If there was any observable difference, it would be more natural to conclude, that her breasts contained only a milk that was crude, or at least ill mixed, immediately after a meal; and that it has not acquired its consistence, or homogeneity, till after it has been subject to a certain concoction in the breasts. We therefore advise nurses to make only three or four meals a day, at regular hours, and to distribute them at nearly equal distances: for example, at eight o'clock in the morning, at noon, at four in the afternoon, and at eight in the evening. The nurses of princes eat but four times a day; they have their breakfast, their dinner, their collation, and their supper fixed.

Though

Though exercise be, in general, useful in preserving the health of nurses, it is impossible to reduce this to an absolute law ; we must, in this respect, give way to their usual habit and humour.

Another false opinion, which is still more generally received, is, that long sleep is very advantageous, and that its excess can never be prejudicial. People have doubtless not sufficiently reflected, that the benefit we have reason to expect from sleep, is not in proportion to its duration ; and that those functions which it favours, when it is but moderate, are, on the contrary, disturbed by its being unnecessarily prolonged. This fact is generally allowed by physicians. The celebrated Sanctorius, whose experiments are so exact, has demonstrated, that the perspiration, which was increased during a sleep of six or seven hours, was at length considerably diminished, when it was carried beyond its bounds ; that awaking in the first case, was followed by a state of agility, vigour, and clearness of ideas, which are evident signs of health ; and that in the second it was succeeded by heaviness, stupid, and benumbed faculties, and an uneasiness capable of leading to an habitual melancholy, which is indisputably the most dangerous of all the passions to the foundation of health. People constantly require vivacity and gaiety in nurses ; but they may, however, assure themselves, that it is almost impossible to find these qualities in a woman who sleeps twelve or fourteen hours every night. As to the inconveniencies that attend too little sleep, they are known by every body ; but there are scarce any nurses, except those

those in the country, who are women that cannot be corrected by precepts, that are guilty of this bad regimen.

We cannot more reasonably flatter ourselves, that medicinal laws should put a stop to the passions, against which so many other laws have been made without effect. Happily, nothing but the silence of those to which women are most exposed by their station, can determine them to suckle their children; for it is not commonly the women who are gay, voluptuous, fond of the pleasures of the table, of late hours, play, &c. who resolve to undergo the fatigue, constraint, and trouble that attends the state of a nurse. However, as the combinations of the passions are in a manner infinite, especially amongst the women, if any one is found, who would join the tenderness of a mother, and the desire of suckling her infant, to the propensities that arise from rank, fortune, and a genteel education, we have at least fulfilled our duty, by representing, that the quality of a nurse requires the sacrifice of the use, and especially the excess, of these pleasures. We have already observed, that the wives of the common people, and especially those in the country, have but few dangerous passions; and we shall content ourselves with adding, that it is almost impossible to make medicinal precepts reach them, and to correct them by this assistance.

There now remains but one more prejudice to combat with on the subject of nurses. It is still believed (and this error has at present taken as deep root among physicians as among the rest of the people) that nurses ought to be absolutely

solutely deprived of all commerce with their husbands ; by this rule they have pretended to remedy two inconveniences : the first is, the perturbation or disorder which, it is imagined, must arise from the conjugal embraces ; and the second is, preventing the danger of pregnancy. But, methinks, they have not sufficiently reflected on the contrary inconveniences ; which being, however, such as exactly counterbalance them, it appears most prudent to determine in favour of the contrary method. Joubert, in his treatise on Popular Errors, has discussed this question with a justness and precision *, that leaves us nothing to add, but the follow-

* The other manner of being over-heated is by love, in which mothers, who commit the suckling of their children to nurses, are very often guilty of a mistake, as I shall presently shew. If the nurse is married, they will not suffer her husband to lie with her, and that for fear of disordering her milk ; for this, indeed, they have some reason, though all the reasons that are to be urged, are not on their side : for it is much better for the nurse to have the company of her husband with prudence and moderation, than for her to burn with love. The grand desire, when unsatisfied, is the chief of those that disorder the milk, as may be seen by very amorous nurses, who are inflamed with a restless longing for the embraces of their husbands. Would it not be better to suffer these to quench a little this violent thirst, than to constrain them to be thus consumed by a slow fire ? You may see them sometimes so disturbed by the amorous passion, as to lose all inclination to eat or sleep. Who can doubt of the milk being then disturbed, and that the breasts are then in danger of being exhausted ? The nurse is to be well fed ; to have her belly full of sleep, and to do but little work : this is a regimen that incites to concupiscence ; and, if a woman, lazy, well fed, in good plight, and attacked by this appetite, is constrained wholly to abstain from its gratification, I think her milk will not be the better for it ; for, besides its being heated and disordered, it will, like the rest of
her

following reflexion. Either nurses are of a constitution that makes them warmly desire the commerce of their husbands ; or, on the contrary, they are indifferent to the pleasures of the marriage-bed. In the first case, it is evident, that desire excited, and always encreased by privation, will be more prejudicial to the nurse's health, and the goodness of her milk, than the moderate use of the company of her husband.

her person, have the smell of a goat : for which reason, it would be better for her to have the moderate enjoyment of her husband, than to be entirely deprived of it, and kept at a distance from him. And, why not ? Are the wives of our labourers, artists, tradesmen, and others, who commonly suckle their children, excluded from the beds of their husbands ? Or, do their husbands never embrace them while they are nurses ? We know that they do it without scruple ; and, are their children more weak, or sickly, than those of our rich citizens, too cautious ladies, and affected women of quality ?

But the principal reason is, they are afraid, if the nurse has any commerce with her husband, she will become pregnant, and the infant suck bad milk : It is to be feared, that the nurse may not know of her being with child, before the milk has been some time spoiled ; for most women have not the menses while they suckle, and, on this account, seldom know of their being with child till there is a fault in their milk : And others, who have the menses, are very often pregnant a month before they perceive it ; but what is still worse, many nurses who know of their being with child, for fear of being discharged, take no notice of it, till they have not a drop of milk left, and thus the infant is greatly injured. These are the principal reasons advanced by the good women, for their not suffering the nurses who suckle their children to know man. But the inconveniences I have already alledged, counterbalance these ; and, in my opinion, on being put into the balance of equity, bear down the scale ; for the heated milk of a woman, who impatiently longs for the enjoyment of her husband, is much worse, and more prejudicial, than that of a woman with child. The ladies, who but ill understand this reasoning,

husband. Medicinal observations prove, that the frustrating of this appetite is attended with the most dangerous effects, and I do not believe, that its being moderately gratified, has ever been attended with the least inconvenience with respect to health. As to the second case, it is evident, that the habit of body which, in this respect, constitutes a state of indifference, supposes a kind of inertitude, or insensibility in the organs, that renders them incapable of be-

soning, will say, that I advise suckling infants with the milk of a woman with child : but, by their leave, I do not say this by way of advice, but rather shew, that with respect to infants in the country, and those of poor people, who feed grossly, the milk of their mothers, when with child, is not prejudicial. I don't say, that it would do no hurt to the delicate constitutions of the infants of good families, as well because their parents are fed with great delicacy, as because they do not suck the milk of their mothers. I have sufficiently shewn the mistake of those who think it strange, that a nurse should enjoy her amours : but I would always be understood to mean this as done modestly and soberly ; in the same manner as we freely act when left at liberty : for if it be done privately, and by stealth, they will be so inflamed as to double the mischief : the milk will be more disordered, and the nurse, by this means, sooner got with child. She is, in this case, like a drunkard from whom the wine is locked up ; who, if he finds the key of the cellar-door, takes as much as he can drink : but leave the wine freely to him, that he may drink when he is disposed to it, and he will drink seldomer, and be more sober. I thank you, Sir, will the nurses say, when they hear this, you have spoken well in our favour, this is a good receipt, and we will see it faithfully taken. You are certainly an excellent physician. The mistresses, on the contrary, will think I am fond of nurses, and love to caress them. It is certainly true, that I love the nurses, and that the woman in the world, whom I love best, has suckled all my children, as long as her milk would permit, and I have not, on that account, avoided lying with, and making love to her, as the better half of myself : and thank God, our children have been well nursed, and are well grown. I do not give that advice to others, which I do not take myself.

ing excited, at least to such a degree as to produce in the animal œconomy an agitation attended with sensible effects : in this case then, the enjoyment, or privation of the pleasures of love, are absolutely indifferent with respect to the health of such nurses.

It is easy to conclude from these two observations, that in the impossibility physicians are under, in relation to the necessities of each nurse in particular, a general law ought to be established, that may provide for all cases with the least possible inconvenience. Now, this law we may give from Joubert, and the most judicious part of the men-midwives ; that is, not to separate nurses from their husbands, on condition, that the nurse shall be changed if she is found with child, or if it appears time to wean the infant. If it was necessary, however, not to risk the last inconvenience, and to separate the nurse from her husband, as is scrupulously practised, with respect to those of princes, they ought, methinks, to require in the nurses designed for them, a very different constitution, and less lively passions ; and there are many sensible signs by which the physician might decide this point with the greatest certainty.

It now remains, that we treat of the regimen of the infant, in relation to the aliment he ought to take. It appears, at first, impossible to give rules on the quantity of the milk. All nurses, and even those of princes, that are under the direction of physicians, give the breast to the infant, as often as he seems to desire it, and wait till he leaves it himself. Thus the quantity is varied according to the appetite of infants : and, I believe there can be no great danger

danger in suffering them thus to satisfy their hunger ; for it is to be presumed, that nothing but mere necessity can make them covet an aliment which continual use must render but little grateful to the palate. However, if it be observed, that some have a voracity that is frequently followed by a vomiting or looseness, they should be restrained to a less quantity of milk, notwithstanding the opinion of the nurses, who commonly have not the least apprehension from the spontaneous vomitings of infants, which they consider even as a sign of health.

They also fall under the inconvenience of overloading the stomach of infants, or of too often renewing its office, by giving them suck as often as they cry, or cannot sleep, as if their pains and wakefulness could arise from no other cause but hunger. This practice, besides this principal fault, has still another, not less essential, and that is, that they only disguise or appease the real evil that excites the cries of the infant, the cause of which we might have struggled against more efficaciously, if it was discovered or reasonably suspected. The gripes, or cholic, for instance, might have been removed by lenitives, slight purges, or cordials ; the worms would have yielded to purgatives or bitters ; instead of which, by being satisfied with amusing the infant, and if I may so express myself, diverting his pain, or even really calming his anguish, they remove only a symptom, the cause remains, and the disorder makes a rapid and dangerous progress.

Pap, or wheat flour, diluted in milk or water, and made of a certain consistence, is the first solid aliment given to young children. It
has

has been observed *, that flour mixes better with milk than other nourishing substances, and, for instance, better than with gravy. People are then in the right in having recourse to it, when it is time to feed an infant with something more than milk, or they are forced by the insufficiency of the nurse's milk, to make an early use of this aliment.

But another consideration presents itself: Are they not sometimes reduced to this expedient in cases where this resource, which is considered as the only one, is not the best? Is not the mixture of the milk of several nurses, and even the milk of a single nurse, and that of a cow, or, in short, the choice of a nurse who has a greater quantity of milk, preferable to the early use of pap? This fact is not yet sufficiently determined by observation, and those opinions that favour the last method are not altogether free from a suspicion of partiality.

It may justly be advanced, that the common pap is an aliment imperfect, and contrary to health: a much better is prepared with the flour of wheat malt, such as is used in France in brewing ale. The germination of the wheat is produced by a slight kind of fermentation, exactly equivalent to that we produce in dough for making bread. There is therefore the same difference between the common pap, and the pap made of malt, as between our best bread and that made without leaven, or the large cakes made of unleavened dough, pie-crust, &c. This kind of pap is wholly unknown in many provinces, as for instance, in Languedoc, and

* Thèse de M. Latier.

panada is used in its stead. Children in general are there much more healthful ; the rickets and evil, so common at Paris, are there scarcely known. I would not positively assert, that the use of pap is one of the causes of these two diseases, which are almost endemical in Paris, and the isle of France. It appears, however, very natural to propose this as a doubt, and to give it as one reason for the exclusion of pap, which is proscribed elsewhere from the consideration of the nature of things, and by the most exact analogy deduced from the instance of fermented and unleavened bread. Now, experience is doubtless as much in favour of the first, as it is against the use of the second.

Van-Helmont, whose authority, in these matters, deserves great respect, has formed his jelly for the nourishment of infants, with bread, and not with unfermented flour. For this reason, we have given the preference to panada and to pap made with malt, in cases where the use of pap is become necessary*.

We give as a rule, which ought to be strictly observed, that children at the breast ought only to have milk, panada, or pap made with malt. Many nurses practise the custom of giving the breast to children that are already strong, and who still suck at the age of fifteen or sixteen, and even at twenty months, two years, or even

* De panis medullâ quis moveret controversiam ? Illa quidem occulta, levis, & in aëream substantiam quasi resoluta (si dente conteritur) colliquescit salivæ solius accessu. At verò de malti farina si quis eat inficias, ponet omne dubium ubi respexerit in prævias quæ circa maltum instituntur operationes, antequam ad vinem obtinendum cado tandem in fundatur. *La Thèse de M. Latier.*

at a more advanced age ; for there are nurses, and mothers especially, who suffer strong infants to suck till two and a half, and even three years ; and these women at the same time give to these very children some of almost all the food with which they themselves are nourished ; and it must be confessed, that it is very difficult to deprive infants who are strong, and of a certain age, of at least a part of these aliments. But this custom cannot be followed without its producing ill effects ; for we again repeat the observation, that milk is very improper to be mixed with most other aliments : and even the broth we are obliged to give to infants some time before they are weaned, is not without danger, as we shew more at large in the first chapter of the second book.

We shall add no more on this subject, but a word or two on the practice, which is commodious enough, of rendering nurses medicinal, by making them take remedies that are to produce their effect on their infants. Alteratives may by this way be communicated to infants, as the light nitrous vegetables, aromatics, bitters, &c. and even some purgatives, whose principal virtue consists in the activity of their parts, as senna, white roses, &c. But it must be observed, 1. That the nurse ought not to experience any evacuation * by the action of these medicines ; that more especially she ought not to be purged, and that their effect, as alteratives, ought even to be very slight. 2. That the action of these remedies should not be such as to produce any alteration in the composition

* We assert this, notwithstanding the contrary opinion of Mercurialis, Claudinus, Ranchin, &c.

of the milk itself; but that the medicinal parts in the milk, be only a dissolution of those parts in the milk unaltered; and, moreover, that the milk has not, by this mixture, any taste capable of disgusting the infant.

C H A P. VI.

Of the secretion of the saliva, itching of the gums, corals, dentition, &c.

WE have hitherto treated of the diseases, nutrition, and education of infants in the first month after their birth. The consequences of their growth are pointed out by particular changes which ought to be observed: They should, for a certain time, be nourished only with milk, or certain liquid aliments proportioned to the delicacy of their organs, and they have yet no need of any aliments capable of too much accelerating the encrease of their strength. Their stomachs, and other viscera, are supple, soft, and pliant; all their members partake of this weakness; they can neither walk, defend themselves, nor make any considerable effort; but in proportion as they approach towards the use for which nature has designed them, they become more active and vigorous, their organs acquire new strength, and demand fresh assistance.

This change is more sensible in the mouth, than in all the rest of the body; its bony parts extend themselves; the anfractuosities of the nostrils and upper jaw, necessary for the modulation of the voice, begin to form themselves, the jaws gather strength, the teeth appear, and

occasion the infant many inconveniences, which it is essentially necessary for us to know, and the treatment of which ought never to be neglected.

We shall begin with two important remarks ; the one anatomical, and the other founded on the animal œconomy.

In the first place, the alveoli, or sockets of the jaws of an infant, are neither of the size nor consistence and solidity of those in adults. They are only a kind of border of bone, more or less apparent, in the interior part is found the buds of the teeth, which Hippocrates was not ignorant of, and which Columbus, as well as some of the moderns, has described. These buds are small vesicles full of a glutinous or pulpous substance ; each vesicle is formed by many layers or beds of a cellular substance, which may be distinctly perceived in the great teeth of young animals, as in young calves, where we may distinguish the folds and circumvolutions of that membrane, or in other words, its layers or beds. The pulpous substance contained in these folds, is nothing but the nourishing juice, which is afterwards applied to form layer upon layer, in the interior part of the principal vesicles. Thus, by the application of different layers of this glutinous substance, the teeth, and all their different parts are formed. The vessels and nerves that belong to them, vivify the nourishing juice, give it motion, facilitate its application, and, in fine, concur in forming both the sensibility and solidity of the teeth. This is, at least, the most natural idea of the formation, nutrition, and growth of the teeth ; and all that M. Duhamel has demonstrated

strated on the subject of the bones, confirms the strength of our reasonings.

But in proportion as the teeth grow, the bony borders which contain them, extend, and grow in their turn; the thin shells of the bones unfold themselves, or more properly, the cellular threads which join the laminæ, extend and strengthen themselves. It is the same with respect to the formation of the gums, which are at first only a kind of periosteum, or a smooth and polished membrane, the parts of which that touch the bone become spongy, or the cellular substance unfolds itself by little and little, nearly in the same manner as in the alveoli.

Stahl has remarked, in his Dissertation on the diseases of the different ages, that in infancy, the humours are carried towards the head, with more force and impetuosity than in adults. This is an observation fruitful in new discoveries; it serves to explain many singular phenomena in the diseases of infants; and what passes in dentition is a necessary consequence of this direction of the humours to the head.

We believe, however, that the motions of all our humours are determined by the action of the viscera of the lower belly, whose irritations spreading to the superior parts, press upon the diaphragm and lungs. The pectoral organs also, which are so difficultly extended and put in play, are, in infants, subject to many revolutions and diseases, which give a very sensible idea of the relation which practice makes us perceive, between the mouth, and the bowels of infants.

Supposing, therefore, that the oscillations of the viscera of the lower belly, which direct the course of the humours, are stronger in infants, and at that age bend more particularly towards the head, it is evident, that the least irritation of the superior parts must encrease that direction of the humours, and render the changes it produces there much more considerable. It has been observed, that the buds of the teeth extend themselves in proportion to the nourishing juice they contain; but however slow and gradual their extension may be, it almost always causes a pain in the periosteum, and consequently in the whole membrane of the mouth. This irritation is perceived sometimes sooner, and sometimes later, after the birth; and it is in general plainly distinguished in the fourth or fifth month, when the mouths of infants overflow with saliva, their glands are then continually erect and in play. To this secretion of saliva there succeeds a flowing of a slimy matter, which is sometimes very thick, with which the inside of the mouth and throat is in a manner lined, and this should be removed with the fingers, or a little linen, &c. otherwise this slime, especially when it is extremely viscous, greatly disturbs infants, and produces, by its being suffered to stagnate, the thrush, pimples, &c.

The shooting of the nerves and membranes of the mouth, depend on the slowness and continuity of the growing buds of the teeth; this state, which affords both pain and pleasure, causes a considerable itching in the mouths of infants. Their gums swell, grow red and inflamed: the
inflam-

inflammation extends to the inside of the cheeks, into the throat, and sometimes over the whole face. The infant is perpetually disturbed by these ailments, which deserve great attention, and very frequently require a treatment suitable to their intenseness. A physician, for instance, if the inflammation is slight, will satisfy himself, if he thinks it ought to be attacked by lenitives, with causing the infant's mouth to be often washed with warm water, honey and water, the decoction of figs, or other common remedies used in the like cases. 'Tis true, that this method can only remove the symptoms, and that it lets the cause still remain : of these the growing up of the teeth is the principal ; and it is necessary to favour it, by diminishing the resistance of the gums, which oppose their rising out and extension. Lenitives produce this effect only by accident ; but sometimes by facilitating the stoppage of the vessels, they encrease the violence of the disorder. It is better, therefore, to compress the gums against the teeth that are to pass through them. These compressions, which the nurses should gradually perform, as the circumstances require, are the most commodious means, as well as those that are ofteneft employed : they should pass and repass the finger over the edge of the gums, press them and rub them more or less strongly. In short, these compressions which are very proper to calm the painful tickling the infant feels in the gums, also answer the principal view with which they are proposed, the forcing a passage through the gums, the separation of their cells, and their contraction round the circumference of the tooth.

The infant is so eager to put a stop to this disagreeable sensation, that he gnaws his fingers, and with precipitation rolls in his mouth whatever he is capable of seizing. From these desires and this exercise, people have very prudently invented the use of corals: the most commodious of these inventions are made of crystal, not angular, but cut in such a manner as to be easily rolled in the mouth, set in a handle of gold, silver, wood, &c. either adorned or not with small bells, and tied to the neck, body, or hand, in order that he may neither lose it nor thrust it down his throat. We cannot see without astonishment, the eagerness with which the infant bites his coral; he is all agitation: we see him cry, scream, and sometimes tear himself, till he draws blood, and that with an air of inquietude and anger, mixed with some slight satisfaction, which succeeds the painful sensation he has just experienced. Already drawn by one passion and held back by another; pressed by pain, and incited by the hope of ease, the infant then finds himself the weak image of what he is to be in time to come, always floating between his desires, his pains, his fears, and his pleasures.

But the assistance of corals, which should be early given to infants, is sometimes useless; the symptoms become of a more serious nature, indigestions, a vomiting, and looseness, and convulsions enter the lists; a fever arises with irregular shiverings, followed by sweats, heat, flushings in the face, and a cough, which puts the infant in danger of being strangled. The physician ought then to redouble his care, for diet, evacuations, and even manual operations

tions become necessary. The fever is not what he has most to fear; for that is, as we have already remarked, the natural state of infants: but as the digestion cannot be perfect in a state so disordered, and as nurses employ scarcely any other method to calm the pain of infants, and make them cease their crying, besides that of making them suck, we repeat the advice we have given on the diet of infants, which ought to be observed at the time of dentition. 'Tis true that children when just satisfied with sucking, appear at first more composed; for deglutition and digestion disconcert the disease; but the symptoms return with greater violence; and I have frequently observed, that infants who would not suck, were less disturbed, and sooner cured, than those that were voracious. Emetics, clysters, purges, and suppositories sometimes produce very good effects. We shall afterwards see the manner of making use of them in all the convulsions of infants. Narcotics are often seasonable; but these assistances do not always prevent the necessity of manual operations. 'Tis true, that when it is necessary to open the gum under which the tooth that endeavours to pierce through it is placed, the physician should take as much advantage of the nurse's hand, as of the surgeon's. The mere scratch which is usually made with the edge of the nail, eases all the symptoms; it signifies but little whether the opening of the gums be longitudinal or transverse; or whether it be more or less deep, provided that the gum be slit neither to the jaw bone, nor to the pterosteum. Those who think that the nails have naturally something in them that is venomous,

nomous, and that the wounds made by them are not healed without difficulty and danger, are evidently mistaken : for many nurses make this incision of the gums, with one of their nails, without its being attended with any ill consequence. The midwives make use of them with the same success in cutting the bridle of the tongue ; and many rabbins practise the custom of making incisions, that are much more to be feared than those of the gums, with their thumb nails, which they take care to preserve of a length proper for this operation.

But we are sometimes obliged to have recourse to a surgeon, and then those who apply themselves to operations on the teeth ought to be preferred. This must be done, when a proper incision is to be made with a lancet, when a tooth that presents itself ill is to be set right, or one is to be drawn that confines or crowds upon its neighbours. We cannot too much recommend the practice of having an infant's mouth examined from time to time by an able dentist : for by taking the teeth in their bud, or in their birth, they dispose them afterward, to shoot forth as good, as fine, and as even as they ought to be. Their position, arrangement, and strength, almost always depend on the care taken to bend, form and preserve them, at their first appearance. There may perhaps be even certain cases, in which openings properly made may correct the bad conformation of the body of a tooth, and even its outward surface.

These small bones, like all the others, follow the general state of the health, and feel the ef-

fects of most of the diseases that afflict the body, especially in the early time of infancy. The teeth contained in the alveoli, while only simple buds, are more susceptible of all quick and painful impressions; it is even to this weakness of body, and to the effects of most diseases, that have preceeded the appearance of the teeth, that the greater or less shivering off of the scales, is attributed: this has been very improperly confounded with their erosion, which is nothing but a destruction of the polish of the teeth, in consequence of the impressions of the hollows and furrows formed in them by pain, &c. and an effect of the ridges of the scales. There is some probability, that these asperities or inequalities on the surface of the teeth, are caused by the different folds which the vesicles of the buds had taken while in their alveoli; but it is not yet perfectly decided, whether these folds, or configurations, suppose an actual disease, or an interior ill habit. I have seen these hollows in the teeth of young subjects, who had never had any distemper, but I confess, that these cases are very uncommon, since there is scarcely any infant of a certain age that has not had the small pox, the meazles, or some other disease. They who advance, that the erosion of the teeth is preceeded by some indisposition, will find this proved as often as they who maintain that such a particular colour of the hair necessarily supposes a former disease by which it was caused. These are then some of those vain and bold propositions, which it would be as difficult to shew to be false, as to prove, especially in a manner capable of convincing persons of the profession.

sion. In short, I have seen erosions in the teeth of dogs, calves, and other animals, that had never yet suffered any disease : besides these assertions are but little interesting, as they can point out scarcely any remedy for preventing, or destroying the fatal effects with which they are attended. We are always obliged to have recourse to general medicinal rules, and are not surprized, on our knowing a little of the animal œconomy, that a disease by which an infant is affected is capable of making an alteration in the buds of his teeth. These truths, though they should be proved by demonstration, can be of no great advantage.

We have nothing more to add here, but to give in a few words what M. Duhamel has discovered in regard to the bones ; and here it will be sufficient to observe, that they are nourished layer by layer ; that these layers feel the effects of the good or ill qualities of the nutritive matter ; that the matter which contains red particles, make the layers they form of a red colour ; that the layers of the teeth produced in a time of sickness, may be more gaping, small, unequal, of a yellowish white, and cause asperities in the teeth, or some irregularity in the disposition of their layers ; so when the nourishing juices are in a small quantity, this will be followed by wrinkles, and particular relaxations of the vesicles of the teeth ; which will, by this means, be evidently put out of order ; teeth have also been found entirely stopped in their growth. Ancient authors inform us, that Pherecrates never had any teeth, I have seen an infant of twelve years of age, half of whose mouth never put forth any teeth ;

teeth; the alveolar border was bony, and had acquired, for want of the nourishing juices, a solidity as considerable as that of the gums of old men, and as capable of performing the office of mastication. Teeth have been sometimes seen to grow down from the palate; there have been also infants born with all their teeth; and others, in which Rankein, Eustachius, Columbus, and several other authors, have found two or three rows, &c. These cases, are uncommon and curious; but at the same time are of little importance. It is sufficient that we wait for, and know the ordinary symptoms of dentition, and how to remedy every disorder, by applying the general rules here laid down, to the different cases that present themselves.

The infants whose teeth are ready to appear, require a certain degree of action. They should be diverted and eased, by being presented with different objects, and by observing not to expose them either to great heat, or piercing cold. Those who are still in arms should be moved about by their nurses, and there is some danger in not carrying those who begin to walk; for many faults in the irregular conformation of the legs and thighs, derive their origin from the negligence or precipitation of the directresses of children: and here people have prudently invented machines for holding them under the arms, and leaving their legs free. These machines are composed of a circular frame of wood, within which the body of the infant is placed, and supported by two sticks, parallel to the horizon, one on each side, on which the circle moves backwards and forwards, by sliding on the floor, or by means of wheels fixed

fixed to it. They also make use of a kind of basket or cage, into the upper part of which they put the body of the child up to his arm pits. By the help of these machines the infant learns to support himself, to move his legs, to fatigue and divert himself. This exercise serves him instead of walking, and those other motions that are of such advantage to the health of adults, and also instead of those that were given him in the cradle.

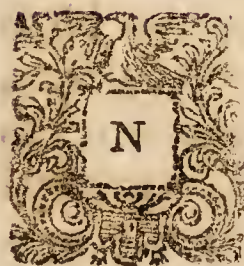


1

A N
E S S A Y
O N T H E
M E D I C I N A L E D U C A T I O N
O F
C H I L D R E N.

B O O K I I.

C H A P. I.



NATURE has put great difference between the granivorous animals, the quadrupeds, who eat grafs, and carnivorous animals, in relation to the nourishment destined for them during their infancy. The first, though they are the most weak and delicate are, at that age, fed with aliments the most solid and difficult of digestion. It is astonishing to see a young pigeon nourished with the grain given it by its mother, and that it perfectly digests it; and to observe a calf suck for near two years. 'Tis true, the corn which the mother disgorges into the bill of the young pigeon, has already undergone some elaboration in her craw; but there
is

is still a wide difference between this grain, a little digested, and milk; granivorous animals have, therefore, the digestive powers sooner formed, and made capable of a greater resistance, than other animals. They digest grain before they can pick it up, and have a bill so solid as to divide it: herbivorous animals do not digest grass till they are capable of cropping it, and the strength of their stomachs encreases only in proportion as the body grows, and becomes strong.

The least reflection is sufficient to determine the class which nature seems to have assigned to man, with regard to the aliments he ought to take. She has left him the choice between fruit, flesh, milk-diet, and corn. Those physicians who condemn the use of flesh, and even pretend entirely to prohibit the use of it amongst men, have not sufficiently attended to this general law, nor to the power we have of digesting whatever is alimentitious.

Animals perfectly carnivorous, such as birds of prey, &c. never feed on any kind of grain; nor can they digest it, as M. de Reaumur has shewn, by the most ingenious experiments. Those, on the contrary, who are perfectly granivorous, cannot digest flesh; these indeed are but few: the greatest number of granivorous animals are capable of eating meat, especially when it is dressed and seasoned; and we find some among those that feed on pasturage, who refuse that aliment; but the number of those who eat and digest it, is infinitely more considerable. In short, certain animals take indifferently all kinds of nourishment. Man is of this number; the industry given to him makes him

him extremely various in the choice and preparation of aliments. But it is to be presumed, that the digestive powers of animals would be endued with the same diversity, if they enjoyed the same assistance.

Nature has pointed out to quadrupeds a fixed time for the change of their nourishment. Perhaps the first men who interfered in the medicinal education of infants, learnt from this observation, to make them pass from the use of milk to that of another aliment, to hinder them from sucking, and, in a word, to wean them. This law, 'tis true, would become useless, were we to follow the precepts we have given on the subject of the nourishment of infants. They would pass from one aliment that is free from any inconvenience, and very easy of digestion, to another that has the same advantage, and of nearly the same consistence; thus would they be spared the pains and dangers of weaning. But as we ought not to flatter our imaginations with abolishing a method generally received, we shall satisfy ourselves with giving that which appears to us to be the most easy, and least subject to the inconveniences that almost always become the necessary consequences of the common practice which is thought extremely advantageous. We shall first compare the method taken by a nurse in weaning an infant with that which nature points out to a cow, when it becomes necessary for her to wean her sucking calf.

The cow freely yields to the eager desires of the young calf all the time of his early age, she even shares with him the pain and pleasure of suckling: but being informed by some particular

ticular revolution, which she has experienced, by the change of the sensation of suckling, which was at first agreeable, and now gives her pain, by the loss or decrease of a great quantity of the milk she is obliged to give, in proportion to his growth, she uses him ill, refuses to know, and flies from him. Deaf to his lowings, at which she was before so greatly affected, scarce will she condescend to shew him, by her example, the manner in which he is to crop the grass with which he should feed himself. We cannot, without admiration, see the consequence of this change; the calf is at first surprized, he flatters his mother, rises into anger, is in the fullens, he sometimes even calls her with a scolding voice; in a word, he expresses, in a very sensible manner, all the passions with which he is affected. But his endeavours to move her, make no impression, the time of separation is arrived, and this is necessary with respect to almost all animals. Mothers amongst the birds, will have their young ones fly as soon as they have strength, without their assistance; and for this purpose, they then shun, and even beat them. In herds of black cattle, and flocks of sheep, I have seen other mothers, and even the males, take the part of those who would wean their young, and chase and pursue those who incessantly importune them by their complaints, and these, after being repulsed by their own mothers, present themselves to as little purpose to all the others. The calf, or lamb, being now independent, grows lean, scarce can he gather enough of the tender stalks of the grass to support him; he at first knows neither how to crop, to chew, nor to swallow it, he

he learns by little and little, by the force of practice, to live without his mother: the hunger he suffers becomes salutary, and he encreases in bulk in proportion as the endeavours excited by necessity, teach him the way to feed himself, like all other animals of the same species.

A nurse who would wean her infant, which she usually does about the fifteenth or sixteenth month, when he has cut almost all his teeth *, begins by depriving him of the breast, or by smearing her nipple with some drug that is bitter, or has a very strong smell, capable of disgusting the infant, who cries, is uneasy, and frets on his being deprived of an aliment so mild and sweet, and to which he has been so long accustomed: and his complaints but too often prevail on the mother to change her resolution. The infant, who had for some time suffered the pain of hunger, swallows down the milk with such a voracious eagerness, that he is ready to be choaked. Most of them are happily obliged, soon after, to throw it up, for the disposition of body contracted by hunger, fretting and crying, will not permit their stomachs properly to digest it: it is not therefore at all to be wondered at, that this is followed by indigestions, and a vomiting and looseness.

It were to be wished, that physicians were able to serve the nurses as the shepherds do the ewes whom they force to wean their young:

* *Tempestivæ ab lactationis signa sunt duo, dentium ferè omnium eruptio, cibi solidioris appetentia.*

Sin puer tamen dubiâ & tenui valetudine sit, aut insalubre hyemis aut æstatis tempus vigeat, protrahenda lactatio est ad salubriorem veris vel autumnii tempestatem.
Hucherus Bellovacus de morb. infant. p 741.

They arm the noses of their lambs, kids, &c. with pointed iron, which pricks the mother whenever she permits them to come to suck. Nurses ought, however, to be punished some other way, when they suffer themselves to be influenced by a misguided tenderness, in giving suck to infants whom they have begun to wean, or when they chuse rather to injure their sucking child, than to suffer the pain that attends the return of their milk. The inquietude and crying of the infants, which prevail upon them to make use of this cruel complaisance, ought rather to prevent their doing it, since, as we have already observed, they cannot digest the milk they swallow in this state, any more than the mixture by this means necessarily made in the stomach, with the other aliments to which they have endeavoured to accustom them.

There are nurses, 'tis true, who do not allow infants to suck when they resolve to wean them, but who never cease filling them with flour pap, panada, soap, broth, and chewed meat. As they were accustomed to make them suck, and to draw them to sleep by making them swallow a large quantity of milk, they endeavour to produce the same effect by giving them a great deal of other nourishment: hence most of these children are seized with a fever, attended with indigestions, worms, a looseness, convulsions, and many other mortal diseases, that might have been prevented, by diet, and a more proper care.

“ Before we reflect on the practice of most
 “ nurses, who chew the aliments they would
 “ make

“ make the infants swallow, let us discard all
 “ idea of disgust, says M. de Buffon, and per-
 “ suade ourselves, that at that age, infants are
 “ entirely incapable of it : They are, indeed,
 “ no less greedy of receiving their nourishment
 “ from the mouth of the nurse, than from her
 “ breasts. On the contrary, nature, it seems,
 “ has introduced this practice in many coun-
 “ tries very distant from each other ; it is used
 “ in Italy, in Turkey, and in almost all Asia ;
 “ it is also found in America, and is used in
 “ the Caribee islands, at Canada, &c. I be-
 “ lieve it to be very useful to infants, and ex-
 “ tremely agreeable to their state, since it is the
 “ only means of furnishing their stomachs with
 “ all the saliva necessary for the digestion of
 “ solid aliments. If the nurse chews a piece
 “ of bread, her saliva softens it, and makes it
 “ much better nourishment, than if it was
 “ softened with any other liquor : however,
 “ this precaution can be only necessary till
 “ they are able to make use of their own
 “ teeth, in masticating aliments, and of dilut-
 “ ing them with their own saliva.” But those
 prejudices that are the most hurtful, being
 generally entertained by the greatest number in
 all nations, we ought not to be surprized, that
 the custom we have been mentioning, has been
 introduced in different countries. This autho-
 rity then cannot prevent our condemning a
 practice that is not attended with any real ad-
 vantage, and is capable of producing many ill
 effects. The saliva of nurses is sometimes vi-
 cious, many of them have rotten and stinking
 teeth, foul gums, &c. which, to a certain degree,
 may be consistent with their having good milk.

Besides, it is much more healthful for children to accustom them early to mix their own saliva with their food, and to give them, till they have teeth, such aliments as require but little alteration in the mouth, and are most easy of digestion. “Quando mulieres morbidæ, says
 “Zuinger, cacochymæ, pultem salivâ pro-
 “priâ imbuunt & postea ori lactentis intru-
 “dunt; salivæ talis est vis fermentativa, ut
 “promptissimè quoscumque morbos propa-
 “gat.”

We cannot make use of too much precaution, in bringing the stomach to lose its habit of digesting nothing but milk: the use of which should always be insensibly laid aside. From milk we may proceed to boiled rice, gruel made of oatmeal, and panada; and from panada to meat: we ought never to make a mixture of aliments that are not of the same nature, and of an equal consistence: more particularly, people should observe not to give the infant more solid aliment than can supply, by its weight and quality, the place of the milk he took before.

A looseness and feverish disorder in infants, are too commonly thought to require the use of medicines; and where these indispositions proceed from weaning, the use of narcotics and repeated purges, cannot be too much condemned: in a word, it is proved by experience, that diet alone, when properly managed, is most proper for the different disorders that happen at the weaning of infants. Their grief, the vexation they feel at being deprived of milk, and the first solid aliments given them, cause revolutions that must be treated like those dis-

eases that are to be left to nature, or whose cure is trusted to time, and a proper regimen : and, indeed, the scurf, scabs, and sweats, that then arise, disappear of themselves, when we have the patience to wait for it.

I have mentioned what happens to young animals on their being weaned, only to shew the use and necessity of the diet we are going to treat of. If it was possible to make the calf that runs after its mother, who refuses to let it suck, eat a certain quantity of grass, its appetite would certainly be satisfied ; but it would be incommoded too. It is absolutely certain, that at first its diet should be digested by little and little. The leanness which accompanies the weaning of animals and infants is a useful change. It is the effect of the emptying of the small vessels, filled with a milky juice, that is to give place to a nourishing lymph of another nature, and a more solid consistence ; for even a well-conditioned chyle, but produced by other matter, on being carried into vessels filled with milky juices, may be as prejudicial as flesh-meat mixed with milk in the stomach. Reason, therefore, here agrees with experience, in convincing us, that we are to blame to consider the state of those infants as fatal and dangerous, who lose their plumpness and complexion after their being weaned. We shall conclude, therefore, in the first place, that weaning an infant is giving him a disease. Secondly, that this disease, when well ordered, has its uses, in regard to the general œconomy of life. Thirdly, that diet is a sovereign remedy for all the indispositions with which weaning is attended. Fourthly, that the infant who is to be weaned,

K 4

should

should be wholly deprived of milk, and fed with other aliments. Fifthly, that most of the diseases with which infants are afflicted at the time of their being weaned, are the effect of the bad choice, or the too great quantity of aliments given to infants on their being deprived of milk; and, in fine, that all those accidents that are most fatal, may be prevented by an exact regimen, like that we are going to propose.

C H A P II.

Of the diet of infants who are weaned; or the manner of governing them, while in health, so far as relates to the six non-naturals.

THERE is nothing in the practice of physic so difficult as establishing general laws of diet, if we admit only among the number of the healthy people, those who enjoy perfect health. If this health was more common, observation and reflection would doubtless, furnish us with the sure and uniform means of preserving it, just as they have furnished us with general plans for the cure of diseases plainly characterized, such as those termed acute, where the difference of constitution, age, sex, seasons, climates, &c. do not produce so great a variation, as has been imagined, which have always, and in all places, a ground of resemblance that is sensible and constant. But what we call health is modified by a thousand essential circumstances; or to speak more intelligibly, it is thought to subsist in spite of a multitude of little infirmities, either sensible or concealed;

concealed ; by which means health is divided into different degrees, as it is more or less perfect. We must necessarily reckon amongst these infirmities, the affections which physicians have made to depend on the different characters, ages, sexes, constitutions, &c. for infancy, as we have already observed is a disease ; old age is a disease ; and in short, the athletic strength of certain men, is not less a disease than the weakness that properly belongs to women.

Now all these foundations of the different complexions, are still considerably varied by habit, which, we have long ago observed, may convert to a salutary use, the most pernicious practices, or lose the advantage of the most happy natural dispositions, by their abuse, or a negligence in improving them.

We do not, 'tis true, find ourselves stopped by this last inconvenience, when it is our business to regulate the government of infants, and to take them at their most tender age, out of the hands of their nurses. Though it be already too late for some who have contracted habits while at the breast, we may however advance, that generally, at this tender age, we may flatter ourselves with finding flexible bodies and untainted minds, and so much the greater conformity between different healthful subjects, as neither sex, nor the throng of objects which depend on the organs that constitute it, have any existence, with respect to infants.

But there always remains an essential difference, arising, first, from constitution, from a
greater

greater or less degree of vigour, and, in a word, from the several degrees of health: and, secondly, from the views proposed, in relation to the state of life designed for the infant, when people are not in a station that will admit them to chuse, or to wait till the infant's taste is formed, in order to consult it. Thus the diet proper to form a warrior, should be different from that which is to dispose an infant to be passionately fond of study, or to support the wearisomness and languor of an unactive life. A body capable of bearing fatigue, want of sleep, the inclemency of seasons, &c. and a mind disposed to receive violent, and active passions, are as essential to the first, as they are useless, and would even be prejudicial to the last. For what need has a man of letters of strength and activity? Would they be of advantage either to his health or well-being? If we give ourselves leave to reflect, we shall find that they would be at least useless to him, though they might, to a certain degree, be united to that disposition of body which is consistent with a person's having a genius, or a love of letters.

To return to our principal subject, the rules to be observed in relation to the diet proper for infants. All that can be generally established on this head, may be reduced to the few following regulations, which we must even be obliged to alter according to the circumstances we have already mentioned; for we again repeat the observation, that it is extremely difficult to establish general rules of diet,

Of Food.

We begin with the food of infant's on their being weaned, and shall lay it down as our first rule, that it ought to be proportioned to the weakness of their digestive organs, and to the small degree of activity, and little application, proper for them at the beginning of infancy.

This maxim is so evident and natural, that to some readers it may appear superfluous, or at least, one of those vague and general assertions, with which our medicinal compendiums, those collections of general indications, that are of no service in particular cases, are but too much filled.

The rule we have established, is not however one of these; but, on the contrary, is directly opposite to the opinion most generally received, that infants ought to be nourished only with the coarsest and most common aliments. This last opinion is adopted by Mr. Locke*, who however introduces it with the wisest precautions: but though it may be of advantage to accustom infants to the grossest aliments, the manner of doing it may be very dangerous. That kind of aptitude, which people pretend to give the stomach, in digesting the coarsest aliments, ought to be managed with discretion; and not by immediately throwing brown bread and solid meat into a stomach that has hitherto digested nothing but milk and pap: this is not the way to accustom it,

* Thoughts concerning Education.

without danger, to more solid aliments of difficult digestion. Besides, the general use of this habit does not appear to me to be sufficiently evident; for, in this case, we ought to distinguish, whether an infant is destined to be strong and vigorous, and is to be indispensibly obliged to make use of these aliments; without which the design of habituating his stomach to them, is altogether chimerical.

As to the inconveniences, or present dangers, attending the method we reject, they are very evident; indigestions and all the disorders that arise from them, threaten the infant, who is destined to be fed with aliments, to which his weak stomach cannot accommodate itself. The present utility of the action of the digestive organs, excited with all the force required for the digestion of aliments capable of great resistance, is certainly nothing at all in children. Such a digestion can only be proper for peasants, or men habitually destined to continual exercise, or violent labour.

These then are the aliments that appear to me to be proper for infants newly weaned.

Their principal nourishment should first consist of broth but little seasoned, of the gravy or jelly of meat, of the whitest bread well leavened, and well baked, of water thickened with rice, pearl barley, oatmeal, &c. of baked fruit, as apples, pears, cherries, &c. No pastry, no milk-diet*; and at first no solid meat, especially ragouts, &c.

* These are forbidden from the general rule we have already established, of not mixing milk with any other kind of aliment.

We may at length give them several kinds of raw fruit, perfectly ripe, as apples, pears, grapes, cherries, and a few sweetmeats, but in small quantities, by way of dainties; and from a complaisance that can never be hurtful. This permission, however, ought not to extend to plums, apricots, peaches, figs, melons, almonds, nuts, &c. These raw fruits being absolutely forbidden them, since, by observation, they are found to be evidently pernicious.

An opinion almost generally received, has made sugar regarded as a dangerous aliment, as being remarkably heating, very liable to breed worms, and, consequently, unfit for children. The mischief which the excess of this aliment is capable of producing, and the cases in which its use is prejudicial, are not proved by decisive observations. We may, on the contrary, boldly advance, that sugar may be eaten with creams, &c. with fruit, either preserved, simply baked, or raw, not only without the least danger, but that it is an alimentous seasoning of a very salutary nature. The ill effects produced by giving children sweet things, generally depend on causes very foreign to the sugar, as on the heaviness of the crust of all kinds of pastry, or on the milk used in these preparations, as cream, franchipane, &c. from a mixture of these sweet things, and even of those which we esteem salutary, as the raw sugared fruit just mentioned, with other aliments, that are of a different nature; with flesh-meat, which sugar glues up, by plaistering it in such a manner as defends it from the action of the juices necessary for digestion. It is easy to prove the truth of what we now advance, by
the

the inspection of the excrements sometimes voided by infants, after indigestions caused by their eating sweet things, or even sometimes by a mixture of fruit in the stomach with solid flesh-meat, which is always, in some degree, dangerous. We shall, therefore, be so bold, as without hesitation, to advise sweetening fruit and the farinaceous meats given to children with sugar; and we are not afraid to assert, that there is not the least room to fear any ill effects from this aliment, since this fear is not at all rational.

Sugar is a salt, and a salt heated by particles of lime, say those who are best informed in these matters; *it is therefore very hot, and consequently very prejudicial*. For every thing that is esteemed heating is very formidable to the public, and even to physicians: every body would be cooled, for this is the general taste. Without endeavouring to discuss this last prejudice, which would lead us too far from our subject, and without entering even into a close examination into the nature of sugar, we shall satisfy ourselves with maintaining, in a few words; 1st, That sugar cannot be strictly and properly called a salt; since it is nothing else but a mucous body like honey, gum, or the must of wine. 2dly, That all salts are not heating: the acids are evidently refreshing; nitre and mineral crystals pass for true antiphlogistics. 3dly, That some parts of lime do not heat, especially when combined, as in sugar, with oily particles, which is a mixture that composes a kind of soap. 4thly, That sugar does not, in its own nature, heat; if it ever does so, it can only proceed from an excess, which seldom hap-

happens, or in other words, from its being eaten in too great a quantity, and on account of its being too nourishing an aliment: in the same manner as soup when too rich, gravy too strong, a large quantity of jelly, jelly broth, &c. are heating. 5thly, That the pretended heat procured by sugar, is an inconvenience of so vague and uncertain a nature, that we cannot fix any determinate idea to it. And, in short, that heat is more commonly indifferent than hurtful; and that it is sometimes salutary.

We shall say but one word on the drink of infants. It ought to consist of water alone. Constant observation shews the advantage of this practice.

The aliments taken after weaning an infant being thus determined, the second rule, which we are to lay down, relates to the quantity of these aliments, and fixing the time of the infant's meals.

It must be observed, on this subject, that infants are voracious, or in other words, that their stomachs frequently call for a fresh supply of aliments, consequently their digestion is easily and speedily performed: we may therefore treat them with sufficient indulgence in relation to the quantity of their food: but we ought not to dispense with regulating the number and time of their meals. I cannot come into Mr. * Locke's sentiments in relation to this last point: he would have the time of their meals varied, in order that they may not be accustomed to want to eat at a fixed hour: which might be attended with very considerable

* Thoughts on Education.

inconveniences in the ordinary course of life. I confess that I am not so moved by the misfortune to which we may be reduced of being very much incommoded by hunger in some certain cases, which, in relation to the greatest part of mankind, can but rarely happen, as to be willing to fortify them against this danger, by exposing them early to the more certain inconveniences that necessarily depend on the irregularity of the times of their eating. Many observations plainly enough prove, that there is some danger in making a new meal, when the digestion of the preceding repast is only finished by halves : it is not therefore proper to disturb the order of children's meals, by rendering them nearer to each other. If, on the other hand, an infant is made to fast too long, it is to be feared, that he will eat with too much greediness, after this unaccustomed abstinence. In short, it is not prudent to vary this order, by placing his meals at a greater distance, or even suppressing those that are found to be useless, when habit or complexion renders them almost absolutely necessary. Besides, as we have already hinted, the worst that can happen to a man of sense, who is sometimes, in the course of his life, reduced to the necessity of going without a meal at his usual hour, is his suffering hunger ; for nothing will force him to anticipate the time of eating, when he feels that the last meal he has eaten is not yet digested. But this alternative, either of suffering hunger, or of being necessarily incommoded by eating before we have occasion for it, is an extreme that but seldom happens even to persons most accustomed to eat at regular hours ; and there
are

are few of these persons who cannot sometimes, without danger, eat an hour or two sooner or later than usual. Daily experience confirms this truth. Mr. Locke's opinion then seems not to be built on observation, and to have more in it of the metaphysician than of the experienced physician.

All things considered, it is doubtless best to regulate the meals of infants. Of these they may be allowed four every day, and custom has generally enough established the interval of four or five hours between them. We may also, according to the usual custom, render these meals alternately a little more full or a little slighter, reserving the soup and other aliments most nourishing, for the dinner and supper, and giving only at the breakfast and collation in the afternoon, bread and fruit, and even most commonly nothing but dry bread. Infants ought neither to eat nor drink between these meals; for these little supernumerary repasts are so many fatigues or distractions, if I may so express myself, to the organs employed in digesting the preceding meal; fatigues which it is always useful to spare them.

The whole time of infancy, till the age of puberty, ought to be regulated on this model, only proportioning the quality and quantity of the aliments to the encrease of their strength, and to the greater or less degree of exercise they take in consequence of it; till at last they have a right to the nourishment and regimen of perfect men. For the rest, this change, made by little and little, in the quality of their aliments, only consists in accustoming them at first to light and tender meat, as that of poultry, and

several kinds of game, as quails, partridges, &c. and at length, to all the flesh meat that is commonly seen at our tables; but they can never, by a rule of diet, be permitted the ragoos and made dishes invented by luxury and sensuality. Infants may in time take these as a necessary evil; but physicians will never cease publishing their danger.

It is proper here to observe, that this regimen has no relation to the children either of the peasants, or the common people: this we have already observed in the beginning of this work: they are recompensed by other more real advantages, for the want of those accommodations, and that care which we recommend in the treatment of other infants. In short, though it could be proved by more solid arguments, that the advantages arising from this regimen, ought to make them practise it; and that the wants of their children required this at their hands; the state of poverty and misery in which they are involved, would hinder them from doing it.

ON THE SECRECTIONS.

Those who have learnt the first rudiments of pathology, know that the most fruitful and most frequent cause of diseases, consists in the defects of the excretions, and especially in their diminution and suppression. We shall presently speak of the most essential, and abundant of them all, I mean insensible perspiration when we treat of the plays and exercises of children, and on their dress: those performed by the two other strainers which may be distinguished

guished by the name of general, (because they may be considered, as the outlets to which are carried in abundance, the parts to be thrown out from the whole mass of humours) these, I say, which are performed by the intestines and the urinary passages, ought not to be managed with less care. The expedient recommended by many authors, of accustoming children to go to stool, and make water, at certain determinate hours, by setting them, in spite of themselves, on their chairs, or disposing them to make water, though they have no pressing occasion for it, and by not giving them their breakfast or permitting them to go to play till this is performed, is extremely useful*, and will seldom fail of producing the effect expected from it. It is not to be doubted, but that the retention of the gross excrements, and even of the urine, is capable of producing very considerable mischief, and besides the habitual constipation, which may be contracted by infants from neglecting at their early time of life, to yield to the first motions by which they are solicited, is a mischief attended with very dangerous consequences, and that commonly produces very bad effects.

We therefore propose, that children be accustomed to go to stool, at least twice every day. This custom it will not be difficult to

* We ought not however to carry this method so far, as to awake children in the middle of the night, as is commonly practised, to engage them to make water; this custom is only necessary with respect to such children as are subject to wet the bed; but as for others, this would be doing them a real hurt, by interrupting their sleep, without its being attended with a greater advantage, or even one equivalent to it.

establish amongst them, as by the natural constitution of their age they are disposed to be laxative. If we can carry this habit, which is very possible, so far as to fix exactly, or pretty nearly, the hour in which this office is to be performed, the most commodious that can be chosen, is that of their rising and going to bed: for besides these being the hours in which throughout their whole lives they will be least exposed to unforeseen events that may hinder their discharging this office, it is a matter of consequence, that these times are also very properly chosen in relation to the times of their meals, which are so far distant from them, as that the digestion of the last aliments they have taken, may be perfectly over. For, in the natural order, the expulsion of the gross excrements ought not to be performed, till after they are entirely digested; and that not only for the convenience of rejecting the useless remains of this operation, but even that the last may not be hindered by the first; for the motion of the intestines formed for the use of these organs, in the expulsion of the excrements, is of a different nature; and these two actions are not designed to be performed at the same instant of time. Mr. Locke has therefore made an ill choice of the hour for this excretion, when he advises its being excited in children immediately after breakfast.

Of AIR.

Men have in all ages acknowledged the general use of a free open air, or one that is frequently changed, or renewed, in the preservation

tion of health. But, in this last age, and especially from the labours of Mr. Hales, we are become acquainted with the nature of the contagious quality this fluid contracts, from the action of different vapours mixed with it. The perspiration of animals, especially that of the lungs, which is hotter and more plentiful than that of the skin, destroys, in a singular manner, the elasticity of the air, and, consequently, renders it unfit for respiration, from the very reason of its having been too often respired. To remedy this inconvenience, many persons of distinguished learning, as Duhamel, Desaguliers, Hales, &c. have strove to invent different methods of changing the air, in places where it naturally stagnates, and which are destined to be inhabited by a great number of men, as hospitals, public halls, churches, theatres, &c. But a more simple expedient, more in the power of each individual, and most applicable to all cases, is, not to stay too long in a close confined place, often to taste the fresh air, and even, as much as possible, that of the country. This rule, the usefulness of which is evident in all the ages of life, is still more essentially so for children. First, because being more delicate, they are more exposed to the fatal consequences of a contrary practice. Secondly, because those who are arrived at maturity, commonly find in the ordinary affairs of life, or the pursuit of their pleasures, frequent opportunities of taking the air, which children have not, to whom we consequently ought to order it in a more particular manner, by way of regimen, or as a practice that will be of service to their health.

The pale, bloated, weak, and sickly look of the children of Paris, especially amongst the common people, the tradesmen and poor citizens, whose children almost always remain shut up with their mothers, who have neither the time nor convenience of taking a walk with them, and who cannot, as in the country, and in small cities, suffer them to run about the streets and squares : the weakness and ill health, I say, of these children, but too plainly prove the prejudice they receive from living in close and confined places, and especially on ground-floors, and in back-shops ; for these last are still more remarkable for the badness of complexion, and diseases of their young inhabitants ; a circumstance that serves to distinguish the ill effects of air confined, or only changed for the almost infected air of a nasty ally, or noisome street ; from weariness and want of exercise, which also concur but too effectually, in forming the bad constitution of the children we are mentioning, and even perhaps of that want of genius, with which they have for a long time been charged. Let children therefore live, as much as possible, in a pure, open and free air : for this is a precept that cannot be too warmly recommended.

To the constitution of the air belongs the consideration of cold and heat, wind, rain, and, in a word, all the vicissitudes of the seasons.

The rule of familiarizing infants to all the inconveniences that depend on these, though useful in itself, deserves however to be a little modified and restrained by some observations.

First,

First, We are all, more or less, exposed to the vicissitudes of the air. The person destined to live the most retired, the most soft and effeminate life; even the woman who lives in the greatest affluence, and is surrounded with every superfluity, necessarily lives in an atmosphere, the temperature of which will sometimes be so suddenly varied, that she cannot foresee the change, or take the necessary precautions to prevent her being affected by it.

Secondly, It is certain, that, by habit, we may acquire the power of not suffering by these changes; and that by means of preserving ourselves from them with too much care, we contract the contrary habit, that of being no longer able to expose ourselves to them without danger. It is therefore useful for all persons to be inured, from their infancy, (for it is too late when we are arrived to a certain age) to support all these changes of the air without danger to their health, without pain to themselves, and without any actual inconvenience.

Thirdly, The only means of hardening infants against these evils, is to expose them to them betimes: 1st, By having always a regard to the greater or less vigour of their complexion. 2dly, According to the kind of life required by their sex, their station, and the state to which they are destined. 3dly, According to the severity of the climate they are to inhabit, so that if it be a very salutary practice in the northern countries to wash the head, feet, and hands of children in cold water, the same custom may be useless, and perhaps prejudicial,

in Spain, or the south of France. We shall however lay it down as a certain truth; that it is, in general, very useful, to fortify ourselves by habit against the vicissitudes of the seasons, that we may be able, without danger, to support the most extraordinary changes in these : because they are not produced by accidents, like those which force us to make a meal at an unaccustomed hour, which reduce us to the necessity of feeding on gross aliments, or to take up with a bad bed. The greatest part of mankind may secure themselves from these last inconveniences ; but not from the first : for none can be secured from them, that do not condemn themselves to a course of life wholly employed in the care of preserving themselves from the injuries they might suffer from the weather.

OF SLEEP.

We have already observed, that sleep is the almost natural state of new-born infants ; and have also remarked, that as in all the stages of life, sleep is favourable to the natural and vital functions, so, with respect to infants, it is adapted to dispose their bodies to nutrition and growth. The whole time of infancy is distinguished by the same necessity and inclination to sleep : which differ in the different ages of children, in the same proportion as their growth is more or less sensible, slower or more rapid : so that as the growth becomes less considerable in proportion as the infant advances in age, the child of four or five years old is less sleepy, and has less need of sleep, than the infant at the breast ; the child of eight or nine
years

years old, less than that of five ; and thus he continues till the time of his growth is completely finished. How concealed soever the order of things may be, by which these two phænomena in the animal œconomy are connected together, their relation is not the less real.

Sleep is necessary to children who are already strong, on another account. They are generally always in motion, running, jumping, very busy, and never standing long together in the same place ; and thus, by the fatigue they undergo, they dispose themselves to sleep, and also render it more necessary.

It is therefore from experience, and from these two last reasons, that of promoting the growth of infants, and that of repairing their powers and faculties, dissipated at a certain age by action, that we establish the extraordinary usefulness of sleep to children. Mr. Locke, in treating on this subject, has entered into a number of particulars, which we shall here give our readers. “ Of all that looks soft and effeminate, says he, nothing is more to be indulged
 “ children than sleep : in this alone they are
 “ to be permitted to have their full satisfaction,
 “ nothing contributing more to the growth
 “ and health of children than sleep. All that
 “ is to be regulated in it is, in what part of
 “ the twenty-four hours they should take it ;
 “ which will easily be resolved by only saying,
 “ That it is of great use to accustom them to
 “ rise early in the morning. It is best so to
 “ do for health ; and he that from his childhood, has by a settled custom made rising
 “ betimes easy and familiar to him, will not,
 “ when he is a man, waste the best and most
 “ use-

“ useful part of his life in drowziness and ly-
“ ing a-bed. If children, therefore, are to be
“ called up early in the morning, it will follow
“ of course, that they must go to bed betimes,
“ whereby they will be accustomed to avoid
“ the unhealthy and unsafe hours of debauch-
“ ery, which are those of the evenings: and
“ they who keep good hours, seldom are guilty
“ of any great disorders. I do not say this, as
“ if your son, when grown up, should never
“ be in company past eight, nor ever chat
“ over a glass of wine till midnight. You are
“ now, by the accustoming of his tender years,
“ to indispose him to those inconveniences, as
“ much as you can; and it will be no small
“ advantage, that contrary practice having
“ made sitting up uneasy to him, it will make
“ him often avoid, and very seldom propose
“ midnight revels. But if it should not reach
“ so far, but fashion and company should pre-
“ vail, and make him live as others do above
“ twenty, 'tis worth the while to accustom him
“ to early rising, and early going to bed be-
“ tween this and that, for the present improve-
“ ment of his health, and other advantages.

“ Though I have said, a large allowance of
“ sleep, even as much as they will take, should
“ be made to children when they are little, yet
“ I do not mean, that it should always be con-
“ tinued to them in so large a proportion, and
“ they suffered to indulge a drowsy laziness in
“ their bed, as they grow up bigger. But,
“ whether they should begin to be restrained at
“ seven or ten years old, or any other time, is
“ impossible to be precisely determined. Their
“ tempers, strength, and constitutions, must
“ be

“ be considered. But some time between seven
 “ and fourteen, if they are too great lovers of
 “ their beds, I think it may be seasonable to
 “ begin to reduce them by degrees to about
 “ eight hours, which is generally rest enough
 “ for healthy grown people. If you have ac-
 “ customed him, as you should do, to rise
 “ constantly very early in the morning, this
 “ fault of being too long in bed will easily be
 “ reformed, and most children will be forward
 “ enough to shorten that time themselves, by
 “ coveting to sit up with the company at night;
 “ though if they be not looked after, they will
 “ be apt to take it out in the morning, which
 “ should by no means be permitted. They
 “ should constantly be called up, and made to
 “ rise at their early hour ; but great care should
 “ be taken in waking them, that it be not
 “ done hastily, nor with a loud or shrill voice,
 “ or any other sudden violent noise *. This
 “ often affrights children, and does them great
 “ harm ; and sound sleep thus broke off, with

* The French translation, adds to Mr. Locke's text, the following passage from Montagne, which the reader will not be displeased with finding here : “ My father,
 “ says the last mentioned author, was advised to make me
 “ obtain a relish for learning, and a love of my duty, by
 “ not constraining my will, and making them my own
 “ free choice, and to elevate my soul in all the sweets of
 “ liberty, without rigour or constraint. This was carried
 “ to such a superstitious length, that some maintaining,
 “ that the tender brain of infants might be disturbed by
 “ snatching them by surprize, suddenly and with violence,
 “ from sleep, in which they are much deeper plunged
 “ than we, he caused me to be waked by the sound of
 “ some musical instrument ; and never was without a man
 “ capable of awaking me in this manner.” *Essai de Mon-*
tagne, liv. I. cap. xxv.

“ sudden

“ sudden alarms, is apt enough to discompose
“ any one. When children are to be awakened
“ out of their sleep, be sure to begin with a
“ low call, and some gentle motion, and so
“ draw them out of it by degrees, and give
“ them none but kind words and usage, till they
“ are come perfectly to themselves, and being
“ quite dressed, you are sure they are tho-
“ roughly awake. The being forced from
“ their sleep, how gently soever you do it, is
“ pain enough to them; and care should be
“ taken not to add any other uneasiness to it,
“ especially such that may terrify them.

“ Let his bed be hard, and rather quilts than
“ feathers. Hard lodging strengthens the parts;
“ whereas being buried every night in feathers,
“ melts and dissolves the body, is often the
“ cause of weakness, and the forerunner of an
“ early grave: and besides the stone, which has
“ often its rise from this warm wrapping of
“ the reins, several other indispositions, and
“ that which is the root of them all, a tender
“ weakly constitution, is very much owing to
“ down beds. Besides, he that is used to hard
“ lodging at home, will not miss his sleep,
“ where he has most need of it, in his travels
“ abroad, for want of his soft bed, and pillows
“ laid in order; and therefore I think it would
“ not be amiss to make his bed after different
“ fashions, sometimes laying his head higher,
“ sometimes lower, that he may not feel every
“ little change he must be sure to meet with,
“ who is not designed to lie always in my
“ young master's bed at home, and to have
“ his maid lay all things in print, and tuck
“ him in warm. The great cordial of nature
“ is.

“ is sleep ; he that misses that will suffer by it :
 “ and he is very unfortunate, who can take his
 “ cordial only in his mother’s fine gilt cup,
 “ and not in a wooden dish. He that can sleep
 “ soundly takes the cordial ; and it matters
 “ not, whether it be on a soft bed, or the hard
 “ boards ; ’tis sleep only that is the thing ne-
 “ cessary.”

We shall here make the same observation we have done above, in relation to the irregular meals of children. These frequent changes of the position of children’s heads, which Mr. Locke would sometimes have high, and sometimes low, are recommended from a very remote view, and a very fortuitous advantage, while those changes, and especially placing the head low, are real evils, that may at least disturb the sleep of children. If they have contracted the habit of lying with their heads high, in what case can they want the means of making use of a pillow ? As to the general precept, of not being reduced by habit to the necessity, either of having a soft bed, and a pillow properly placed, or to the alternative of not sleeping ; there is no doubt but that the wisdom and advantage of this caution require its being recommended ; but we should accustom children to sleep without the necessity of having a good bed, by making them constantly lie in a hard one, and not by exposing them to changes that are incommodious, disagreeable, and hurtful.

On the EXERCISES and PLAYS of children.

The plays of children that consist of motion,
 or which exercise only the body, ought to be
 distin-

distinguished from those other plays that only exercise the mind, and which properly belong to the memory, the imagination, and sometimes to reflection. Races, leaping, wrestling, the imitation of hunting, war, and the laborious arts with which children amuse themselves, are of the first class. Those that consist in the observance of some capricious rules, in being ready on some sign agreed upon, at resolving questions, and, in a word, most of the games which children play, sitting in the house; as the imitation of sedentary arts, telling, or hearing stories; playing at chess, draughts, tick-tack, and other games which children are permitted to play, are of the second class.

This distinction is the more necessary, as it serves for the foundation of rules, according to which the diversions of children ought to be regulated.

We suppose the necessity of play for children to be acknowledged, and indeed this necessity is evident. The mind is always in want of new images, and there are only two ways of changing the scene presented before it. The first is, procuring a rapid succession of sensations *; and the second, combining, in various manners, a few ideas, received in a short space of

* We shall here observe, by the way, that the sensations of children are in proportion to the delicacy of their organs. The perfection of taste, and that of health, depend as much on the choice of the sensations, as the clearness of ideas depends on the signification of words. “As to the operations of the soul, says the abbé de Condillac, children distinguish names equally, provided they are simple, and that circumstances turn their reflections on that side; for we then find by the use they make of these

of time, either with one another, or with those furnished by the memory, in a word, meditating or musing. Children are not fit for this last employment. The lessons they are taught at a certain age, and which they do not learn without a labour that approaches to meditation, a labour that cannot long subsist in minds unused to that contention of spirit, to that labour required in close reasoning. Though children learn most things by rote, like parrots, it is this inattention that saves them from the inconveniences of the abstract ideas which it is customary to inculcate into them in the most tender infancy : this labour, though it becomes only that of the memory, is nevertheless a labour, a state of violence, to which the soul can-

“ these words, yes, no, I will, I won’t, that they fix upon
“ their true signification.

“ We may, by playing with children, he continues,
“ give to the operations of the mind all the exercise of
“ which it is capable, if there be no object out of its
“ reach, and even insensibly lead them to a habit of re-
“ gulating these operations in an orderly manner : By this
“ means, when age and circumstances afterwards change
“ the objects of their employments, their minds will be-
“ come perfectly unfolded, and they will be early endued
“ with a sagacity, which by any other method they could
“ not have obtained, till very late, or perhaps never.
“ Young children should therefore neither be taught latin,
“ nor history, nor geography ; for, of what use can these
“ sciences be in an age when they do not yet know how to
“ think ? For my part, I pity the children who are admired
“ for their knowledge, and foresee the time when we shall
“ be surprized at the mediocrity of their talents, and per-
“ haps at their stupidity. The first thing we ought to
“ have in view, is the single point of giving to the mind
“ the exercise of all its operations, and in doing this, we
“ need not go in search of objects to which they are
“ strangers, since the means may be furnished by way of
“ pastime.” *L’origine des connoissances humaines*, p. 277.

not

not be bent but by little and little, and which must consequently be interrupted from time to time.

If any doubt the ill effects produced by tiring the minds of children, or those which proceed from their aversion to certain employments, too rigorously insisted upon by their masters, they need only to consult their experience, and they will find many examples of children, not only rendered stupid by these two causes alone, but even lean, emaciated, and reduced to a mortal langour.

The necessity of play being therefore acknowledged, the medicinal precepts, on this part of the regimen of children, may be reduced to these which follow.

First, Young children who have yet received no regular instruction; for instance, till they are four or five years of age, ought to have no other business but that of their little amusements. But, in order to render this only business of use in the formation of their minds, and to prevent the injury that might be done to their tender and delicate bodies, by stopping their growth, children of this age should only be permitted the plays of the second class. Motion of body is not yet proper for them, at least, that violent motion exerted by children in their daily sports: a little walking is sufficient, and it is, besides, of great use to exercise their minds, by fixing their attention, by slight efforts of memory, and by that kind of sagacity which these games require.

Thirdly, The children who already have masters, and receive instruction, ought, on the contrary, to be acquainted with no other diversions

versions but those whose principal view is to exercise the body, because their minds are, without comparison, better relaxed by the absolute interruption of all study, than only by simply changing the objects : and besides, at this age the bodies of children have already need of motion ; it is time to begin to render them firm, and to procure them that strength which the habitual action of the muscles is very proper to give ; it tends to favour a determination of the excrementitious humours towards the strainers of the skin, and to render the skin as fit as possible, for an abundant perspiration. The abundance of that excretion is not only of very considerable use, with respect to children who are of a soft and moist complexion, and besides have commonly a very keen appetite, but it is also of infinite consequence with respect to the course of the whole life ; for habit may dispose the skin to perform its offices, as it does the other excretories to perform theirs, as we have above observed, when treating of those of the belly, &c.

But excess is to be avoided in the exercises of children ; if they are immoderate, besides their being capable of exhausting their strength, and actually causing diseases, they will occasion that kind of change which is produced by labour in the bodies of our peasants, who are too early inured to fatigue. Their members grow strong, harden, and become restive before their time, and consequently do not arrive at their full growth : such children are therefore short, thick, and squat.

We should still proportion the exercises of children to the station in which they are after-

wards to be placed; for this is a consideration that we ought never to lose sight of: the infancy of the warrior ought to be more active, that of the man of letters more thoughtful; but both should be directed with discretion.

Thirdly, The play of young ladies ought not to be, as they but too commonly are, only sedentary sports. It would therefore be useful to make some change in their manner of life, which is commonly too little active for their bodies. If they used more action, they might lose some of those graces that depend on freshness of complexion, plumpness of person, and delicacy of skin; but they would infallibly gain by it other advantages, as a more constant health, a degree of strength that would give them a free and easy walk, and that air of life and agility which we behold with such pleasure amongst the women in the provinces, where the men are wrestlers and dancers, and even the girls divert themselves in running and other exercises, as in Lower Languedoc, Provence, Alsace, &c.

In fine, we ought to hinder the children, who have heated themselves, and been put in a sweat by some violent exercise, from lying on the ground, going into the cool air, and drinking cold water. The dangers of which practices are proved by too many instances for us to offer any reasons, in order to demonstrate them.

On the AFFECTIONS of the soul.

In the practical part of physic, the affections of the soul are considered in two principal lights, as being to be managed in the nature
of

of remedies capable of producing changes really corporeal, in the animal œconomy : for when it is necessary to modify, alter, and make some of the passions combat the others, in order to produce an immediate change in the mind ; and, in a word, to move it by the assistance of morality, we must confess, that this does not properly belong to medicine. The physician, nevertheless, has sometimes recourse to these helps in the cure of diseases ; as, for instance, in fits of melancholy, which pervert the judgment to such a degree as to make the persons afflicted with this disease, imagine, that their stomachs are filled with frogs ; that their bodies are made of glass ; that they are in danger of being hunted by dogs, &c. For here, by useful stratagems, they frequently succeed in recovering them from this dreadful state : but these are always foreign to the medicinal preparations made use of on these occasions.

An effect truly medicinal on the affections of the soul, is therefore a corporeal change, an action truly physical. In this sense we may advance that pleasure, an entertaining gaiety, tranquility of mind, &c. are very favourable to health : and that spirituous liquors, coffee, exercise, and evacuations properly managed, cure a black melancholy, voluntary uneasiness, and a dejection of soul, that sometimes resists all moral assistance.

Let us consider the passions of children, and see what is the state of their minds, whether habitual, or differently modified by exterior objects that are of use in the preservation of

health ; and what, on the contrary, is evidently prejudicial to it.

We have already observed, that gaiety, and keeping at a distance every disgusting employment, are of great advantage to the health of children ; and it may be added, that independence, the power of surpassing others, of creating respect to their wills, and caprices ; carelessness, a waggish disposition, inapplication, boldness, &c. contribute to the health of the body from the same mechanism ; so that, if a man was destined to be only a healthful animal, the best means of answering this end would be to let the infant grow and form himself according to his natural inclinations, without rules, without precepts, and without chastisement ; this, every thing else being out of the question, would be the best means of succeeding, and making him the most vigorous man, or more properly, machine ; provided that he was early accustomed to exercise, and to a degree of fatigue proportionable to his strength. But as the duties of religion, which he ought to observe, and those of the society * to which he belongs, require the sacrifice, or at least, the prudent use of most of these passions, it is the business of a wise and discrete governor to weigh the advantages and inconveniences of each of these passions, as well in relation to the private good of his pupil, as in regard to what he owes to God, and society. This discussion does not properly belong to the physi-

* The different societies in which they are to live, carrying things still farther, require a different education.
Spirit of Laws.

cian, who, however, as a good citizen, knows, that the general advantage of society ought always to take place of the private advantage of the members of which it is composed. The office of a physician is then, in this respect, confined to cherishing and preserving the dispositions that are not inconsistent with morality, as gaiety, and courage, and that by the assistance of physic, playing, walking, bathing, &c. properly managed; by taking care of the digestion, sleep, &c. and by removing the contrary passions, as an habitual timidity, moroseness, &c.

As to the passions considered in the second light, that is, as remedies, we shall content ourselves with shewing their usefulness in this respect, by a few familiar instances. Nobody, for example, is ignorant that children are cured of a nocturnal incontinency of urine by the fear of chastisement; that a heavy torpid state of body, is cured by the attractions of pleasure, by a curiosity properly excited, and by the emulation of imitating the sprightly actions of children of the same age. We have already observed, that the prospect of a breakfast, an impatience to go to play, the promise of a reward, &c. are so many means made use of with success for procuring children the salutary habit, of going often enough to stool.

We shall add no more on this subject. The little we have said is sufficient to mark out the limits that ought to circumscribe an education truly called medicinal, and to fix the points where we ought to depart from, and where to unite medicinal observations, and the progress of the art upon that part which appears to us

only to have been just sketch'd out, and very worthy, however, of being examined with greater care.

C H A P. III.

On the Dress of children.

WE shall not here examine the sentiments of some authors, who have pretended that nature designed that men should go naked like the other animals, or at least, that it would be easy for them to accustom themselves to the inclemency of the seasons in all climates: we shall satisfy ourselves with giving the motives that seem to have determined men to cover their bodies, and to prefer one dress to another.

The sacred books, in relating the history of our first parents, fallen from the state of innocence, teach us the origin of modesty and shame, and consequently of the principle on which the art of covering, which is only a consequence of them, was founded. But, decency could only lead men to cover themselves in a very simple manner; the choice of dress therefore arises from other motives. The inhabitants of cold countries have been forced to wear heavier and warmer cloaths than those of a hotter climate. There was a necessity for those, suitable to the state of the labourer, the artist, and the soldier; suitable to men, to the fair sex, and to children. Luxury, the necessity of concealing natural defects, the air of resemblance, or the relation found between the desires, characters, and passions of men, and their manner of dressing, have occasioned all
the

the fashions spread throughout the world, which are as singular and as various as the tastes of each nation and each individual; a diversity that contributes to the entertainment of civil life, to commerce, and to society.

A picture that represented in one point of view the different dresses of all nations, would be worthy the curiosity of the most philosophical minds. We should there see all at once, what necessity, industry, caprice and reason have, in this respect, dictated. We should see the progress of arts, the effects of genius, the images of the passions, the consequences of prejudice, and, in a word, the ideas that have been entertained of the good and the beautiful, the useful, the agreeable, and the superfluous.

But the medicinal use and necessity of dress ought to be our only subject. And therefore, though the Indians adorn their heads and bodies with the plumage of different birds; though other nations make scarifications in their cheeks and foreheads, though they flatten their noses, though they pull out their teeth, and pluck off their eye-brows; and though they stain their eyes and bodies with different colours; all these varieties, which are the fruits of caprice, are nothing to our purpose. We shall not even speak of the remarkable and incredible changes, which the people who have inhabited the same climate have made in their dress. The Romans divided the Gauls, into the Gauls wearing the gown, and into the Gauls dressed nearly like us; into *Gallia togata*, and *Gallia braccata*. Each province, each city, and even each vil-

lage, especially in the south, has a form of dress peculiar to itself.

But is it necessary for our children to be clothed? What is the dress most favourable to the good position and growth of their members, to the action of the air, &c. This is what physicians ought to enquire into with the utmost attention. This may enable them to find the means of preserving the health of their fellow-subjects.

The laws of insensible perspiration, of that continual dew which arises from our bodies, the necessity, proportions, limits and dangers of which, are better known to the moderns than the ancients, ought to prescribe the manner of cloathing most proper to promote and favour it, without making the interior organs receive any hurt from it.

Now it is an error to imagine, that the warmest and most heavy garments, provoke or facilitate perspiration. The skin, which requires a certain liberty in order to exert its office, is then too much straitened; the air ought to be continually and imperceptibly renewed, and the atmosphere changed which immediately touches our bodies: it then gives the tension to the texture of the skin, which relaxes, and imbibes the hurtful juices, when it is too much heated; and when it retains on its surface, the perspirable matter it had already discharged.

We may therefore advance, that in general, there is danger in wearing too many cloaths, and that it is of greater advantage to the health to wear garments rather light than heavy, that we may not hinder our bodies from partaking, to a certain degree, of the variations of the
air,

air, which only become pernicious from the bad custom we have entertained of heating our bodies too much ; these variations have their use ; they are not hurtful to the most tender native flowers and plants, or the most delicate animals : but the mistaken care taken of us in our infancy has rendered us too sensible of their impressions. We here perceive the advantages which the inhabitants of the country enjoy over those in cities. The weakness, delicacy, and softness of these last, are the evident consequences of the too scrupulous care they take in covering themselves too much, and dressing in warm stuffs proper to imbibe all kinds of nastiness. On the contrary, those who live in the country, are accustomed from their infancy to cold, heat, the change of seasons, and the most rapid variations of the air, without feeling almost any inconvenience from them. Their skin not being pressed down, either by the weight and heat of their cloaths ; or by laziness and inaction, acquires a more permanent elasticity. Instead of wearing like the inhabitants of cities, in winter garments too warmly lined with furs, and in summer those that are too slight, the peasants are almost all the year equally covered : and nothing but preserving this just mean, should make us flatter ourselves with keeping up perspiration, strength, and the plumpness of perfect health.

But children are still more susceptible than adults, of the pernicious effects of heat and cold ; their tender constitutions, and especially their too delicate treatment, expose them much more to the impressions of the air. No-body is ignorant that early flowers, exposed to the
 south,

south, and heated all day by the sun, are more in danger from the frosts of the night, than those placed towards the north; it is nearly the same with respect to children who are reared with too much care; the least change of the air makes them experience a change in their bodies. Fathers and mothers, therefore, ought not to cover their children too much in winter, nor too little in summer. Their cloaths should be light in all seasons, and the health of their bodies require their being early accustomed to the intemperature of the atmosphere that surrounds them. Are not the birds warmed in winter by the same feathers that cover them in the heats of summer? 'Tis true, their plumage is more bushy in the cold season, than it is in the others; but the difference is but very inconsiderable.

In following the rules of nature and reason, we ought always to proportion the weight of the garment to the age, the muscular strength, and the greater or less degree of robustness in the constitution of children. It sometimes happens, that the weakest have need of a little more covering; but, in general, the strongest ought to wear the heaviest cloaths. Physicians have given much the same rules in regard to the cloathing of adults; but we are here confined only to that of children. Let us now proceed to the quality of the stuff that ought to be placed immediately next the skin. The orientals, among whom fine linen was very scarce, wore woollen tunics. In other countries linen was more generally used. Each of these stuffs has its particular advantages; but woollen, when a little fine, appears to me most proper

proper for children, whose skins are commonly somewhat rough, dry, and subject to slight chops, which proceed from a too aqueous perspiration. This kind of stuff is softer, more knappy and oily than linnen; it has a greater resemblance to all the coverings which nature has prepared for the different animals, and which heat them as much by the kind of fat with which they are oiled, as by intercepting the immediate touch of the air. Linen cloth is dryer, and more agreeable to fat, oily, moist, loose skins. On these principles we ought to fix, in the application of the cloaths next the skin, in order to direct our choice, whether it shall be linen or woollen, &c.

I shall conclude this article with a relation of the circumstances of the infancy of Henry IV. of France, which a tradition, in this respect more faithful than the writings of our historians, has preserved. Jane d'Albert having lost many children, who had been educated with the utmost care, and with singular precautions, trusted the young Henry to her physicians, who advised her to send him to the house of a peasant, near Pau. He was there actually fed, educated and brought up, was dressed like one of the same family, and covered only with a few rags, suitable to the station of his supposed father. By this means he became strong, vigorous, robust, active, and indefatigable: it was this management that formed the body that contained so fine a soul. But this is not the only prince and hero which France has owed to the assistance of physicians.

We have hitherto only treated of the quantity, weight, and quality of the different coverings

verings that should preserve the body from the injuries of the air, and the skin from obstructing the humours that should incessantly transpire from it. The manner in which they are to be applied, now deserves some reflections. What we are going to say on stays, which are the most important part of children's cloaths, has some connection with the precautions that should be taken, not to hurt or confine them in swathing.

We are well enough acquainted with the structure of stays and their use: we know that they are made of the shreds of whale-bone, and that they are of different degrees of solidity; but we scarcely know any thing of their origin. Have these cases for the body any relation to the defensive armour and corslets of the ancient warriors? Was the design of this dress to prepare youth betimes for all sorts of military exercise? There appears but little probability of this, especially when we come to consider, that young girls have, in all times, been the victims of a practice, by which they are so confined. It is more natural to think, that the ancients, who had an acknowledged taste for a fine shape, a walk noble and erect, and a graceful dignity of manner, and who were exposed to appear in public in their circuses and amphitheatres, made use of these helps to form men betimes for these advantages. This presumption is the more probable, as the habits of ceremony among the ancients had a pretty near resemblance to the stays we are treating of. In short, as people have swathed infants, for the convenience of women who were trusted with them, they have formed and applied stays, with the same

same view, to support their cloaths, and not to have so often the trouble of dressing them. They might even at first wear stays as a kind of bandage proper to repair or conceal natural defects ; and, may not this precaution, and this necessity, have degenerated into fashion and habit ?

But is it essentially necessary to the formation and good constitution of the human body to be thus shut up and confined in a case ? This is what we are now to examine ; but we shall first take a view of the epigastrium, the hypochondria, and especially their bony and cartilaginous parts continuous to the diaphragm, which are moveable, and which ought however to settle in certain motions of that organ, which is one of the most important, and least known, in the animal œconomy.

If the hypochondria are fixed, and driven inwards towards the centre of the body, by the too solid compressions by which they are confined, the motions of the diaphragm cannot be complete, and all the viscera must necessarily suffer : moreover, the sides of young subjects are bony, or more properly, osso-cartilaginous arches, incapable of making much resistance ; they have not yet attained to their natural size, and are necessarily disordered in their growth, their form and solidity, if too closely confined. The omoplata, or shoulder-blades, are destined to move over their sides behind ; the motions of the arms will be therefore constrained, if the motions of these parts (which cannot themselves play while they are too strongly pressed, or fixed on the sides) comes to be so. The claviculæ themselves being too far separated and
driven

driven behind, lose their bending, and that ease in their play which they ought to have. But, why do we trouble ourselves with reasons founded on the formation of the parts, the force and solidity of which cannot be universally understood? I appeal to observations which every body may easily confirm. How many children do we see subject to flushings in the face, suffocations, coughs, and vomitings, caused by this constraint and compression? A great modern anatomist * has already shewn the inconveniences and mischiefs that attend the use of stays; but it seems to me, that people are not disposed to reap much advantage from his wise reflections. That author asserts, with some foundation, that we ought to lay aside all ligatures that too much restrain the play of the vessels, and the course of the humours; as, for instance, the garters, buttons in the sleeves, neck, &c. It appears to me, however, that this practice is attended with no other inconvenience but such as proceed from its abuse. The desire of having a genteel and well-made person, has occasioned the invention of stays; but it must be confessed, that the mischiefs that may arise from them, being very easily discovered, the tenderness of mothers, which renders them attentive to the complaints and wants of children, should have determined them to lay it aside. Why, therefore, have they not abolished these kind of cases? They doubtless found, that they were of some use: indeed they are necessary for preventing certain deformities which we shall mention in the prosecution of this work,

* Winflow.

and also to conceal and remedy them. But, let us only here speak of the natural and healthful state. Two reflections which we are going to make, seem to prove, that they are not so prejudicial to the growth of the parts, as a too scrupulous analysis of their structure might make us imagine.

First, We may assure ourselves that the straitness of bodies, or that of the spine of the back, (meaning by strait that upright form which it ought to have, and which is known to be always more or less distant from a right line) is as necessary to the strength of the body, as to its agreeableness, lightness and activity. In order to exert a considerable share of strength it is of advantage to gird and bind the loins, and even the hypochondria, and epigastrium. The custom of wearing belts or girdles, which has prevailed among many nations, to all appearance owed its origin to this advantage, which nature teaches, and which reason, founded on the inspection and action of the parts, seem to confirm. A moderate compression, therefore, supports the parts, favours their action, and augments their strength and elasticity. I here mention what I have observed in relation to the body of a very active wrestler: his articulations were loose, the spine of his back was as supple as that of a serpent; but he was ill made, had an awkward gait, straddled with his legs, and when he had stood still for a certain time, could not help staggering; in a word, he was extremely weak with respect to all the exercises that have no relation to his turns of suppleness, and a just equilibrium. There is a reasonable mean in all things: the parts of

our

our bodies lose their natural play by a mistaken direction, too violent compressions, forced motions, &c. and they may become equally disordered when left to themselves. The colon, for example, counteracts the liver, the stomach and the spleen; it easily enters overagainst the epigastrium, the parts of which it distends. It is therefore necessary to give it a moderate confinement; and this effect is produced by belts and stays. I am not therefore for banishing their use. It is only necessary that they do not confine the arm-pits, or compress the middle of the sternum or epigastrium; that they be suited to the age and strength of children, and often renewed. What we have said of stays ought to extend to garters, stocks, shoes, &c. which ought always to be put on with precaution, and to be rather loose than too tight.

In short, our bodies, which were formed and nourished in the matrix, have always been moderately compressed. And their parts are perfectly well formed for this gradual compression. Besides, nature has placed over all the members aponeuroses, that are so many ligatures adapted to confine the parts, and which let us see, that besides the gravity of the atmosphere, they have need of some other body which sticks close, and gently retains them the one against the other, in order that their efforts may not occasion their being put out of order. If it be objected, that there are entire nations who use none of these bandages, I answer, that habit, to a particular point, is capable of doing every thing; that there are few things in life absolutely necessary, and that most things ought to be considered as indifferent; that it is impos-
sible

sible to banish them out of certain countries, and to make them received in others. We must, however, observe, that the people who wear no stays are almost always naked; their skin becomes fortified by the immediate touch of the air; it acquires a kind of hardness which approaches to callosity; it more easily contracts, and serves almost as much as stays, to confine the interior parts: in short, because there are persons who walk bare-foot amongst thorns, and by the force of exercise, render themselves invulnerable, and even insensible of their points, has any one a right to condemn the use of shoes and stockings?

C H A P. IV.

Of the difference of sexes, and of puberty.

THE constitutions of children of both sexes do not usually change, till after the loss of the first teeth, and to speak with greater exactness, till the age of puberty, at a time anticipated by that revolution which terminates infancy. In vain have many naturalists pretended, that the male and female possessed different places in the matrix, and that from thence we might know, by sensible signs, the difference of their sex, their complexion, degree of strength, and inclinations. Those of the present age offer, in opposition to this system, presumptions that appear to have greater solidity: they maintain, that the embryo is, during the first part of its growth, a being of no sex, and neither male nor female; that some particular revolution is required to form, in a

N
distinct

distinct manner, the parts of generation*, or to separate them; that, in short, that primitive union, or to speak more properly, that confusion of sexes in the same individual, is the cause of the analogy, and singular conformity observed between the two sexes.

Instead of attending to the examination of this last opinion, the foundation of which is, in part, found in the works of the ancients, who accused nature of being guilty of an error, or weakness, when she produced a female; we shall content ourselves with admitting what appears evident to our senses, and what may be of some medicinal use. The male and female differ but little from each other in infancy, and even till the age of puberty, except in the parts of generation, which, in most, at the time we have fixed, have scarcely acquired the particular qualities that may produce the effects pointed out in the animal œconomy, and serve for propagating the species. Children of both sexes may then be educated, fed, and treated medicinally almost in the same manner, till they are thirteen or fourteen years of age; but as soon as the first appearance of puberty appears (which varies a little in different climates) the male is become stronger, more robust and nervous; but the female preserves a little longer her childish air. Pretty nearly the same change appears in regard to the passions. The male is naturally fierce; he loves sports that require

* The ancients imagined, that those parts which outwardly appear so different, are originally the same organs, only more or less unfolded. M. Daubanton has some ingenious thoughts on this subject, which he has supported by some new observations. *Histoire Naturelle*, Tome III.

strength and activity, hunting, wrestling, running races, and all the other exercises of the same kind; he has an air of greater boldness and resolution: the young woman is almost always more tender, and sweetness, modesty and timidity accompany all her actions; she grows fond of retirement, and household affairs. Education, 'tis true, may create this difference, but nature seems also to contribute to it. A girl educated like a boy, would be always weaker, less robust, and consequently, less fit for the military art, for travelling, and voyages by sea, for hunting, wrestling, the change of climates, &c. It is with these dispositions as with those of the mind, which education may rectify, but which we ought almost always to regard as a present from nature. Among many children in one and the same family, equally fed, and well educated, do we not every day find the stupid and the vicious, amongst others who have wit and virtue? In short, the children who were hitherto pleased with living and playing together, now experience the growth of a quite opposite taste. It seems as if nature, by producing this separation, was willing to encrease the pleasure she was resolved to give them in being again united. These changes are still more remarkable in a boy. Scarce does he feel the first effect of virility, than he perceives, with astonishment, that his voice grows every day deeper, and hoarser; his surprize is accompanied with supineness and natural timidity; he flies from society and domestic company, and is pleased with none but the youths of his own age; the children with whom he was before amused, begin to grow trouble-

some, he trembles before those who are complete men, whose conversation and actions commonly too little favour the desires with which he is filled. In a word, he lives in a kind of intoxication, proceeding from the strength, liveliness, swiftness, and multiplicity of his ideas.

At this age, which is altogether critical, with respect to education, masters ought to redouble their care and attention, since the constitution is going to be determined for the remaining part of life, and to take an indelible character. The mind and heart being then more susceptible than ever of all impressions ; and those received at this age being very permanent, too much care cannot be taken of giving a suitable turn for religion, society, and the employment for which they are destined.

The body is equally subject to an infinite number of remarkable changes, and is more than ever exposed to a variety of accidents, that may be attended with the most fatal consequences. In spite of the strength which it has really acquired, it is still in a state of softness that demands the greatest care. The youth ought, therefore, to avoid all considerable efforts of strength, and very violent exercise. The viscera, especially those of the breast, at this age, receive very remarkable impressions ; the phthisic, a disposition to a marasmus, a giddiness, and especially to a looseness, &c. then very commonly shew themselves. These accidents, which have not escaped the notice of the great masters of the art, such as Hippocrates, Stahl, &c. are the effect of a revolution produced in the skin. It was hitherto supple,
moist

moist and soft; but it now contracts, dries, and hardens; this alteration in the skin is communicated to the vessels which contain the fat; it is not, therefore, at all to be wondered at that the skin becomes less moist, and pliant, and that the body loses its plumpness. Children at this age experience the same changes that animals undergo, as horses, for instance, who grow remarkably lean at two or three years of age, as if the first efforts made by nature towards virility was nothing more than a compression, spasmodic disposition, contraction and dryness of the skin.

The venter, which was hitherto loose, begins to be more or less bound up; and all the viscera acquire a degree of force proportioned to that of this interior organ; in short, this general dryness of the skin favours the contraction of the diameters of the vessels, and by this means occasions a plethora that becomes, if I may so express myself, the touch-stone of the viscera. Children who have a good constitution, resist the efforts of the humours which at this age are found more accumulated, and pushed with greater violence than before towards the viscera necessary to life, and perfect health: while those who are weak and of a delicate complexion receive dangerous impressions from this new direction of the humours; for from thence proceeds the bleeding at the nose, coughing, spitting of blood, and pains in the head, so frequent at this age.

Most of the revolutions and inconveniences we have just mentioned, are attributed to the unfolding of the parts of generation, which furnish nourishing juices that are stronger and

more capable of giving a due tone and elasticity to the solids and humours : but the unfolding of these parts depends on the preceding change that has happened in the skin and other membranes. They at length, 'tis true, contribute, in a remarkable manner, to the preservation of the health, and vigour of the body : this is plainly proved by the weakness and valetudinary constitution of eunuchs.

The deepness of the voice is a necessary consequence of the strength acquired by all the parts of the body. This change, it is true, is more striking than any of the others ; however, the modifications of the other organs, which it supposes, and which constantly precede it, are not less real. Those who pretend that the organ of the voice is a musical string, are under no difficulty about explaining this phenomenon of puberty. They tell us, that in proportion as the vocal strings increase in thickness, their vibrations must approach nearer to those of the thick strings of musical instruments ; but as anatomical observations are not entirely favourable to those who take the edge of the glottis, for strings ; and as it is evident that the ring formed by the cricoides, acquires a greater diameter by the increase of age ; that the opening of the glottis becomes a little longer, and that the cartilages called the arytenoides separate from each other, in proportion to the growth of these parts ; it is also certain that the bass voice of young men is owing to the growth of the glottis, or the chink through which the air is forcibly pressed, and singularly modified. In short, this different sound of the
voice

voice is always proportioned, as in the other stages of life, to the dilatation of the glottis.

The appearance of the beard is also a mark of puberty, in young men. Hitherto the skin was only covered with a slight down equally spread over its whole surface. Like those moist and light lands on which there grows nothing but a kind of moss, it only gives birth to stalks of hair that cannot shoot beyond a certain length : for their roots are but little nourished ; they are soft and lodged in interstices, where the matter which should form their growth does not stop : but in proportion as the skin contracts and becomes more compact, the roots of the hair receive every day a greater quantity of nutritive juices ; it is not therefore surprizing, that their growth is so sensible, and that it is every day more considerable. It is the same with the stems of plants which receive more sap in winter than in summer ; and the shoots of these stems then become thicker, and stronger.

Great pains have hitherto been taken, to find the reason of the hair growing in certain places, rather than in others, and to point out the particular disposition of the skin which causes the growth of the beard. But we ought only to be astonished at its not appearing equally over the whole body : since, its entire surface is covered with it, except the soles of the feet, and the palms of the hands, in which it seems as if the callous membranes destined to produce the bulbous roots of the hair, were extended in many beds, formed in order to strengthen the epidermis.

Indeed, if we examine the skin with a microscope, we shall discover over its whole sur-

face hair that would certainly grow, if all the other circumstances favoured its increase, and if the skin was so contracted as to cause the roots to be bedewed with a sufficient quantity of the matter exhaled by perspiration. This particular disposition, in regard to the perspirable matter, is doubtless not found in the same degree in all the parts where the hair does not increase in length. It appears to me to depend, 1st, On the thickness and solidity of the skin: 2dly, On its different degrees of tension: 3dly, On the heat, and degree of perspiration, which arises in one part rather than in another; and 4thly, On the frictions occasioned by the cloaths. Thus the skin of the forehead is thinner, more tender and lean than that of the head, and eye-brows; that round the ears, and on the sides of the neck, more than that of the chin; that of the arm-pits and pubis more hot and loose than on the rest of the body.

Whence we may conclude, that the skin of women almost always remains in a state that more nearly approaches to that of infants: it is no wonder then, that they are less hairy; that in this sex the hair does not grow except in such places as are very hot, and most bedewed with the fluid perspired. That the skin of their chins being fine and extremely soft, they have no beard, except when their constitution approaches to that of men. The difference observed with respect to the skin of eunuchs proceeds from the same cause.

The testicles of children sometimes remain concealed in the abdomen, or its rings, till the age of puberty: when nature makes a last effort

effort to send them down into the scrotum. Their appearance, which is not absolutely necessary to generation, is sometimes the effect of a disease, a violent motion, a fall, &c. Most young men at this age feel a kind of stiffness in their groins, which become more sensible and full of pain, when they strive to walk.

Boys also sometimes experience another symptom of puberty ; but tho' this is not very common, it has been observed by several physicians *, and I myself have seen it : what I would now mention is a revolution in their breasts. These organs, the use of which, in men, is not known, sometimes swell, harden, and become full of pain about the age of thirteen or fourteen ; when they seem to spread, and in a manner to unfold themselves, as in girls who approach the state of puberty. I have seen boys where the swelling terminated in the running of a serous matter from the nipples. It is said, that there have been men who have suckled children ; and what I now relate, seems to give it some degree of probability. All the difference found between the breasts that secrete milk, and those that give vent to a serous matter, or suffer only some tumefaction caused by the introduction of a great quantity of a liquor of a different nature and consistence, in the secretory vessels, consists in the resistance or flexibility of these vessels ; the first are arrived to their utmost growth, action and solidity, while the others only undergo an inconsiderable change.

* Particularly by M. Boillet in his *Elemens de Medecine Pratique*. An excellent work, worthy of being read by all young practitioners.

These revolutions to appearance happen to all boys and girls at the age of puberty ; but they are not always sensible. We must not therefore consider them as a disease ; but as only a slight inconvenience, which easily subsides, and that almost always without any remedy.

In long illnesses which children sometimes labour under before the age of puberty, they are found to grow more than they would have done in health. These are commonly deformed in their legs, hump-backed. &c. This phenomenon may be attributed to the extension of the solids occasioned by the progress of a fever, to a remarkable pressure of some of the viscera, and to an irregularity in the distribution of the nutritive juices, &c. We cannot therefore treat the diseases of children with too much prudence, since the general constitution of life depends on them.

The vivacity of young men who are arrived at the age of puberty, ought not to make us suppose that they are fit for marriage ; for that state would enervate them, and for ever ruin their health. It is necessary to watch them with great care and almost never to lose sight of them, in order that they may not deliver themselves up to the heat of their passions, and to their blind impetuosity. Happy those who from constitution, a love of health, reputation, and bodily strength ; who from a regard to the voice of reason, and especially to religion, are saved from the excesses that are but too common at this age. They will not so easily suffer themselves to be seduced by the deceitful allurements which would precipitate them into a thousand dangers, if care be taken to let
them

them know by example, and the most convincing reasons, the hazard they would run of losing their intellects, their strength, their health, and even life itself.

The bodies of girls, at their entrance into puberty, suffer nearly the same changes as those of boys; the skin contracts, the viscera acquire solidity, the voice changes, the humours are carried towards the breast and head, with more violence and irregularity; and these revolutions are more or less speedy and sensible, in proportion as girls are more or less forward, or enjoy a good or bad constitution. The matrix feels the effects of these changes in a greater degree than all the other viscera. Hitherto it was nourished like other parts of the body, without performing any particular office. It now begins to give signs of its action, and of the important part it is to play for the remainder of life. Now what a change must be produced in the animal œconomy, by a new function of such importance?

Ever since Dr. Freind applied the laws of hydraulics to the functions of the matrix, the menses has been considered as an effect of the plethora of the blood, which opens a particular road by its quantity, motion, weight, and rarefaction. This system appears to have the air of truth and probability; we ought not therefore to be surprized, that it has been generally adopted. It even seems to stand upon an immoveable foundation. But Freind and his followers have laid too great a stress on mere mechanical causes; and have not laid stress enough on the particular action of the matrix, which concurs in producing the menses, with as much

activity as the other organs in their particular evacuations. Every careful observer must, I think, readily confess, that from this action, this mechanism of the matrix, proceed the convulsions, shivering, pain, vomiting, head-ach, and other signs which precede the menstrual discharges. The ancient physicians, who were more faithful observers than most of the moderns, perceived the particular action of this membrane, which they compared to one animal contained within another. The school of Stahl, scrupulously attached to the supremacy of nature, and the study of her active powers, whose end and progress are very often regulated, has supported the system, in regard to the other organs of the human body, by the particular action of the vena porta, and its ramifications in the hæmorrhoides, &c.

But the author of the commentaries on Heister, has laid a foundation at once more clear, and agreeable to natural philosophy, built on the sympathetic motions of the nerves : without his assistance, we should have been deprived of the light which exact and just physics, applied to anatomy, spread over medicine and the animal œconomy ; and I find in the history of these motions convincing reasons for the phænomena which precede, or follow the appearance of the menses, and the action of the matrix.

In short, Dr. Freind's system has been more particularly examined in the school of Montpellier, than even by the English authors, and they have begun to shew its falsity. By the fixed, simple, and clear principles by which the author of the excellent treatise on the glands, has

has explained the action of the different organs, and particularly of the matrix, we ought to explain whatever this viscera produces of an extraordinary nature in the bodies of young girls. It is owing to the strength of this organ, and to its direction, that all the changes preceding the menses, are owing. These revolutions are within its own department, and are the necessary consequence of life, sensibility, and the peculiar sensation of its nerves. It produces the excretion of the menstrua, as the glands seem to produce that of the saliva; and as it is necessary, in order that the salival glands may exert their functions, that the humours abound to a certain degree, and that the glands are disposed of themselves, and independently of the other functions of the body to their excretion; so it is also necessary, that the blood should furnish the matrix with a certain quantity of juices, and that the matrix should unfold, raise, and turn itself in a manner proper to separate a part of the blood useful to its depuration. The author we have just mentioned, carries his reasonings still farther; he questions the existence and necessity of the plethora, which, before his time, was considered as the sole cause of the evacuation of the menses. He enters into so exact a detail on the action of the nerves, in regard to all their offices, or the particular sensation with which each nerve is endued, in consequence of its degree of tension, on the state of sensibility which constitutes their life, and renders their existence necessary in living animals, that we must readily confess, that all his observations are conformable to the laws of nature and the animal œconomy, and that the experiments

riments published on the irritability of the nerves, teach us nothing that we did not know before. This author maintained this system in theses determined by him at Montpelier, ten or twelve years ago, at which I was present.

To return to our principal subject; these considerations ought to oblige a physician, in the treatment of the diseases of young women, never to lose sight of the appearance and evacuation of the menses. It is sometimes of great importance to moderate the symptoms, to augment the powers of nature, and to direct them towards the matrix by aperitives, bleeding, and other remedies; for if the viscera of the breast, or the other cavities come to suffer any injury, or to be oppressed under the weight of humours, what irregular motions must necessarily be produced? Great disorders will thereby arise, the effects of which will last as long as life itself. In a word, this last period of the infancy of girls, is a disease that requires the greatest circumspection; but as it cannot be remedied without reflection, and varying the method of prescription, according to the circumstances of the case, no specific can, in all cases, be effectual; and, in short, as this has a near relation to the diseases of adults, we shall content ourselves with recommending exercise, the choice of good aliments, sobriety, the not giving way to too much thought, good humour, and shunning all medicines given by empirics.

There is a very ancient error, in relation to this subject, that has been very generally embraced, and which it may be proper just to mention. It is imagined, that marriage is a remedy for all the disorders of young persons
of

of the fair sex. But I can safely assert, after the opinion of many famous physicians, and the remarks I myself have had occasion to make, that marriage, most commonly, only aggravates or changes these disorders. It is true, it sometimes cures them ; but this is made too general a law to be prescribed. This advice, which young women are afraid of, and which frequently shocks their bashfulness and modesty, prevents their complaining in time ; and they chuse rather to undergo what they suffer, than be suspected of having desires which they have not, or which they are desirous of concealing. In fine, I do not doubt, but that a too early marriage is as prejudicial to girls as to boys. It is therefore necessary to wait for their marriage till the age of puberty. Without this precaution, which is but little attended to, especially among the great, the body will contribute to the production of new beings, what is absolutely necessary to its own growth. Thus we see they feel, for their whole lives, the effects of this premature operation, and the being who results from it, is always the victim. The organical molecules that have contributed to its formation, were in too small a number, and too unactive ; can we then be surprized at the weakness, leanness, and death of the infant they have formed ?

C H A P V.

Of the fall of the first teeth; the management of the hair, nails, &c.

THE first teeth*, which cost infants so dear, fall, as we have already observed in the sixth chapter of the first book, towards the seventh year. There is then produced a revolution which the ancients observed and applied to the doctrine of numbers; a doctrine whose obscurity is all its merit; and, which has been laid aside, rather from the birth of new opinions, than from the solidity of the reasons offered against it.

The first teeth seem only destined to prepare the way for those that are to succeed them. They may be considered as the first leaves of a plant or tree, which fall in order to give place to stronger leaves. The first teeth mould the gums and the alveoli: they preserve the distance that ought to be kept between the two jaws; and may even be considered as forming one and the same body with the secondaries: or, to speak more properly, there is only one kind of teeth, the secondaries serving as roots to the first, which are only the first strata of the body of the teeth, from which, with more or less ease, they detach themselves. It is not, therefore, to be wondered at, that the first teeth have no

* They are commonly twenty, eight incisivi or fore-teeth; four canini or dog-teeth, and eight grinders: these are all equally divided above and below. They begin to appear about the third or fourth month, and are all out at the end of two or three years. *Essai sur les maladies des dents, par M. Bunon, p. 99.*

roots ; or, rather, that they do not appear to have any, when we compare them with the secondary teeth. The following is the substance of what has been urged on this head : the first teeth have a part contained in the gums, which are distinguished by the name of secondary teeth, and plainly perform the office of roots. The greatest number of dentists have assured us, that the first teeth were separated from the secondaries by small laminæ extremely thin. The *Sieur Bunon* imagined he gave great proofs of his sagacity, when he asserted, contrary to the received opinion, that “ The first teeth have
“ roots which insensibly wear out by pressure ;
“ and that the particles of the first teeth are
“ consumed by the heat of the parts, or drawn
“ out by the saliva*.” This dentist did not certainly understand the question ; for, the first teeth, considered as a particular body, have no roots, like those of secondaries : but, if we consider the first teeth as ephiphyfes of the secondaries, we shall see that these last served instead of roots to the first. We ought, however, to observe, that the formation of both varies a little in different subjects.

These questions are, however, of no very great importance. We shall here only treat of the teeth called secondaries ; in doing which, we shall not particularize all the rules that ought to be followed, to make them grow as they ought, to procure them the most agreeable arrangement, and preserve them in good order ; for, as this subject is treated of at large in the different works of the French dentists,

* *Essai sur les maladies des dents*, par M. Bunon, p. 103

I shall satisfy myself with making some general remarks that may have their use.

The first relates to the common prejudice, that the preservation of the teeth requires only care, or local remedies; and that all the disorders to which they are incident, depend solely on the bad disposition of the mouth. It is, however, pretty generally observed, that many families resemble each other in the nature of the surface of their teeth, their form, order, and disposition; for the disorders found in the buds of teeth, sometimes derive their origin from the bad constitution of the parents.

In the second place, the teeth have a connection with all the viscera. We have seen women who lost a tooth at every lying-in; and others whose teeth changed their colour when they were under some disorder, or a suppression of the menstrua. Impressions made with some violence on the arms or legs, according to the observation of M. Andry, are sometimes felt in the teeth*. In a word, perspiration, the action of the several parts, and the excretions of different organs, have a connection with the teeth, that is confirmed by undeniable facts. They seldom fail, after many diseases, of being altered or spoilt; and even, when the order of the functions is disturbed to a certain degree.

I have seen young persons of the fair sex, who have had the menses regularly, but yet have been very subject to fluxions at the mouth, which were removed by little and little, after marriage: even the caries of their teeth made less progress than before. A good perspiration

* See the history of Tenia, related in a French mercure.
preserves

preserves the beauty and solidity of the teeth. Scarcely any thing is more effectual against fluxions in the teeth than keeping the head well covered ; and women have been delivered from this inconvenience by wearing, in the night, a mans woollen or cotton night-cap over their own. But a more certain means of promoting the perspiration of the whole body, and one that cannot be attended with the least danger, is to treat the stomach with precaution ; not to overload it with aliments, and to eat nearly at regular hours. People will find it difficult to imagine, that a good regimen is capable of contributing to the goodness of the teeh : but this fact is, nevertheless, invariably true : for, whoever has unsound teeth has certainly some disorder in the viscera ; and what appears in the teeth and gums is only an effect of what passes in the body. People will agree to this observation, so far as it relates to scorbutic diseases ; but they do not see that the others differ from this, only in some gradations that are more or less considerable, and more or less sensible.

I even believe, that the formation of tartar, which is attributed to the earthy particles of aliments, has a nearer relation than is imagined, to the functions of our bodies. When I see, for instance, an old man subject to the gravel, whose teeth are covered with tartar, I cannot help concluding, that there is a great resemblance between the disposition that produces gravel, and that which causes the formation of the tartar on the teeth. The observation I am going to mention will confirm this reasoning.

An old maid, subject to the gravel in the kidneys, very frequently voided stones as large

as peas. This disorder lasted many years, 'till from some cause, which I could not discover, she had a flux of the teeth which covered them with tartar, and even formed, in the inner part of the mouth, and in the gums which supported the foreteeth of the under jaw, a calculous concretion of the nature of the stones she had before voided, and which she had carefully preserved. This concretion, in a short time, fell off of itself, her pain in the kidneys ceased, she voided no more stones as she had done before, and nothing was observed in her urine but a little gravel.

It must be confessed, that we are not sufficiently skilled in the knowledge of the animal œconomy, to be able to explain these extraordinary relations; but meer facts, though unsupported by arguments, are not the less speaking; and when we take the pains to compare them with each other, we cannot help seeing that the formation of stones, or a collection of a tartareous matter, is not produced so capriciously, and with such irregularity, as is supposed; and that nature has, to all appearance, fixed laws, views, and regular steps, in the manner in which the excretions are directed.

The teeth are covered with tartar in many diseases, and especially in some malignant fevers, where they become black, and covered with a fetid incrustation. The humours which flow in the gums and their cavity, have, therefore, as well as the saliva, qualities proper to begin and promote the formation of the tartar. It is said, that the beds of which it is composed, are so many strata of the cellular threads

threads of the gums that have acquired a scirrhus consistence.

From whence we conclude, with the best physicians, that the local diseases of the teeth, are most commonly nothing less than symptoms of the disposition of the humours; we ought, therefore, never to lose sight of this. And it is a very essential point, not to suffer those who are careless of themselves in every other respect, to be ignorant that late hours, drinking to excess, exposing themselves to the inclemencies of the seasons, overloading their stomachs with a great quantity of all kinds of aliment, are capable of spoiling the teeth and the mouth. It is not to our dentists that they ought to apply; they ought not to stop at the outward and apparent defects in their teeth, when they perceive that their mouths are spoiled by the tartar, that their gums are flabby, red, callous, and the surface of their teeth is changed.

These observations prove the necessity of causing the teeth of children to be examined by a good dentist, as we have already recommended; and to have an eye over them, to see that they do not make use of them upon every occasion. They commonly crack, tear, and pull with their teeth whatever resists their hands. We ought also to prevent their eating green and acid fruit; their drinking any thing too cold, after their having eaten what is hot; and their passing from one of these extremes to the other, &c. It is also proper to file their teeth as soon as there is any appearance of rottenness, which may, by this means, be easily stopped; but we must take care, says M. Bunon, of

loosening them ; they should be filed by little and little, and, at several times, in order that they may have time to strengthen themselves.

The fall of the first teeth is a period that requires great attention. The secondary teeth always arrange themselves in a better manner when those that appeared before have well disposed the places they are to stand in. Many people have unsound and ill-placed teeth, from their having been used with injudicious tenderness at the fall of the first teeth, in neglecting the extraction of those that were carious, &c. The grinders of the first teeth are more subject to a caries than the canine and incisivi*.

Children tremble when they perceive a person desirous to introduce any instrument into their mouths ; but we should encourage them, persist, in spite of their complaints and cries, as much as possible deprive them of all reason for fear and terror in this respect, and endeavour to accustom them betimes to the preservation of their mouths, and the management of the teeth, so necessary to their preservation. We shall remark, by the way, that in the provinces people neglect this advantage and perfection too much ; and that, in great cities they often run into the opposite extreme.

I pass over in silence the different ingredients made use of by physicians for the teeth. The circumstances that present themselves ought to determine the choice proper to be made of absorbents, astringents, slight acids, and alkalies. We cannot avoid blaming the negligence of

* When the teeth on one side are rotten, says M. Bunon, the same teeth on the opposite side are almost always corrupted, by which means four teeth are in danger.

the surgeons who leave to quacks, ignorant even of this subject, all the operations relating to the teeth. The first set too little value on this part of their art, and the last too much. It would, I think, be very necessary and advantageous, was a surgeon, who was a wise and experienced dentist, sent into every considerable town in the provinces. The preservation of the teeth contributes to the health of the body, and the desire of having them beautiful, even, and sound, would introduce every known method of obtaining this advantage. The regimen observed with this view, would remove and prevent most of the diseases intemperance produces, and which diminish the number of the citizens.

As to the use of tooth-picks, I am surprized at M. Andry's condemning those of quills, and preferring those of horn, lentisk, gold, and silver. This author imagining, without any foundation for it, that tooth-picks of quills take off the enamel, or solid surface of the teeth. This surface the best-tempered file can scarcely cut; what impression then can we reasonably apprehend from the barrel of a quill, which grows blunt and soft as soon as it is penetrated by the saliva, and can only graze upon the tartar when it begins to harden*?

It has since been proved before the royal academy of sciences, that quills are, on account of their lightness, flexibility and solidity, more convenient than any other matter. Those of metal, and more especially of iron and brass, or the pins which girls commonly make use of,

* Essai sur les maladies des dents, par M. Bunon, p. 229.

as having them always at hand, are extremely rude, sharp, and an enemy to the surface, which they break and cut, nearly as a diamond cuts glass. Those of wood are too soft, and are not sufficiently convenient; and, indeed, tooth-picks of quills or feathers, indisputably deserve the preference.

“ Many persons pretend, says Mr. Buffon, “ that the hair of infants, at their birth, is always brown; but that this first hair soon falls off, and is replaced by other hair of a different colour.” I am not certain whether this remark be true or not; most children have light hair, and frequently it is almost white; some of them have red, and others black; but all who are afterwards to have light-coloured, chestnut or brown, have their hair more or less white in their childhood. Those who are to have light coloured hair have commonly blue eyes, the eyes of the red are of a deep yellow, and the brown of a faint yellow and brown; but these colours are not plainly distinguished in the eyes of new-born infants, most of whose eyes are blue. These rules will not hold in all climates. There is even a sensible difference in France; for there are few fair people in our southern provinces, and I have seen many infants born there with their eyes and hair black.

Every body knows the alteration that hair gives to the countenance: baldness is a defect; and the custom of wearing strange hair, which is become so general, ought to have been confined to hiding the baldness of the head; for this kind of cap changes the truth of the countenance, and gives the face a different air from that it received from nature; and therefore we should

should form a much better judgment of faces, if every one wore his own hair, and suffered it to fall freely on his shoulders. The most elevated part of the head is that which becomes bald first, as well as that above the temples. It rarely happens that the hair which grows at the bottom of the temples falls off entirely, any more than that on the inferior part of the back of the head. None but men become bald as they advance in age; the women always preserve their hair, and tho' it becomes white, as in men, it falls off in a much less degree. Children and eunuchs are no more subject to baldness than women; and in youth the hair is thicker, and in greater abundance than in any other age. The longest hair falls off, diminishes and grows thin, by little and little, in proportion as the person advances in age; it begins to whiten at the points, from whence it becomes all over white; it then grows weaker and more easily breaks. We have examples of young men whose hair was changed white by a violent disease, and afterwards, when their health was perfectly restored, by insensible degrees resumed its natural colour.

Since the anatomists of Montpelier have shewn, that hair has a root that nearly resemble the bulbous roots of certain flowers; and that from these roots planted in the flesh, the hair shoots out, as the stalks of a plant rise from its root, there is less difficulty in explaining the reason of the different conformations which happen to the hair: we may even point out, with more judgment, the remedies proper for its diseases, and more certain methods of changing its colour.

But,

But, why has not hair always the same consistence, and the same colour? This variety can only depend on the nature of the humour by which it is fed, and the manner in which the root is placed in the skin. The ancients, who made all the changes they observed in animals depend on bile, choler, phlegm, and blood, which they considered as the constituent parts of all the juices that flow in our bodies, attributed the red colour to blood and the bile; the white, to phlegm; the black to choler; and the different shades, to the different mixtures of these humours. But, without entering into the discussion of this matter, we shall only say, that it is natural to presume, that the bulbous roots of the hair being placed more or less deep in the skin, and the pores of the skin being more or less open; these roots are fed with the juices that occasion the difference of colour, by the greater or less quantity of the coloured particles of the blood they receive. These particles, or the substance which constitutes the colour of the blood, being received into the hair, together with the lymphatic juices, in a greater or less proportion, give the hair different colours, and render it dry, soft, lank, strong, curled, &c. In short, by whatever manner the hair is coloured and fed, it is always necessary to keep it in good order.

There is one disease peculiar to the skin of the head, which forms scales, nearly resembling the scurf, called the rust of the hair; but by the use of combs and slight emollient decoctions, this scurf is insensibly removed, after which the hair grows faster. Forked hair only requires being refreshed or shortened; after which it gains
new

new strength, like the plants that are carefully pruned.

The fall of the hair*, which usually proceeds from copious sweats, or a dryness of the skin, in consequence of several diseases, requires general remedies, which ought not however to occasion the neglect of those that are to be applied externally, which are regarded as most proper for combating the indispositions that produce this defect. I have seen in these cases very good effects produced from wetting the whole head with onion juice, and afterwards rubbing it with an onion : But, in order to do this, the head must be first shaved ; after which the hair will grow with greater strength : but it must, however, be considered, that this topic, which answers very well in a relaxation of the skin, becomes hurtful when it is contracted. Nothing is of greater use in preserving the hair than shaving ; for by this means, its natural defects disappear, or are corrected ; hair very red becomes darker, and hair that is weak, too fine and thin, becomes stronger, and grows in a greater quantity. This also serves as a remedy for the diseases of the skin ; though we see people with fine heads of hair who never were shaved, it is nevertheless proper to shave the first hair, and the rather, as it seldom

* Aristotle and Pliny say, that a man does not become bald till after he has known woman, excepting only those who are bald from their birth. Ancient writers call the inhabitants of the isle of Mycone, Bald Heads ; and pretend that this defect was natural to those islanders, and a kind of endemical disease, with which almost all of them came into the world. See *La Description des isles de l'Archipel*, par Dappr. p. 354.

escapes all the disorders of infancy. We ought, indeed, to take the same precautions with the first hair as with the first teeth: it is proper to take it away, in order to make way for another growth that has greater strength and solidity. Frizled or shocky hair is not to be altered, since it depends on the manner in which the root is placed in the skin. It is with this as with the branches of a tree, which extend themselves according to the sloap and nature of the earth in which it is planted, and according to the depth of the roots it has shot forth.

The odd variety of customs that prevail amongst mankind, appear in nothing more sensibly, than in the different manner in which different nations dispose the hair of their heads and beards. Some of them, as the Turks, cut off the hair of their heads, and let their beards grow: the Savages pull up their beards by the roots, and carefully preserve the hair of their heads: the Negroes shave the head in figures, some in stars, others like Romish monks, and the greatest number in alternate fillets, leaving as much hair as they shave off, and in this manner they also shave their little boys. The Tolapoins of Siam shave the head and eye-brows of the infants sent them to be educated: in short, every nation has, in this respect, different customs; some set a greater value on the hair of the upper lip than on that of the chin; others prefer that of the cheeks, and below the face; some curl it, and others suffer it to hang strait*.

In fine, what we have observed, in regard to the hair of the head, ought to be applied to

* See *Histoire Naturelle* de M. Buffon, p. 308.

that of the eye-lashes and eye-brows, which are sometimes thick and harsh, ill placed, and curled; if they fall off, the treatment ought to be nearly the same. The eye-lashes are sometimes composed of a double row of hair; in which case one of them ought to be pulled off as lightly, and with as much address as possible; and in doing this, care must be particularly taken not to make use of any caustic.

The preservation of the nails, especially those of the toes, also require much care. Every body cannot have nails round at their extremities, handsomely bent into an arch, finely polished, of the colour of flesh, with a white crescent at the root, and, in a word, in the utmost perfection. But every one may observe, first, that the nails should not be cut too short, since besides the inconvenience that may result from it, and the deformity it occasions, the natural use of the nails, and the most advantageous form of the fingers, require their being a little longer than it is customary to wear them. By this management the ends of the fingers turn over them, and perhaps even the sensation of touching may receive some injury: it is at least evident, that a finger disarmed of its nail, is weaker and more flexible than with one. It is indisputably more commodious to have the nails rather long than too short; in which case they insensibly become glued as it were to the fingers, and no longer gather any kind of dirt. A regard to neatness ought to make us avoid the opposite extreme, by which it happens, that the same adherence getting loose from these parts, the skin of the finger follows the nails, and lengthens

lengthens itself out in a very incommodious and disagreeable manner. The number of people who spoil their nails by cutting them too short, and cleaning the small space between their edges and the end of their fingers, is as great as that of those who clear their teeth from their gums with a tooth-pick. This sometimes degenerates into a fixed habit, especially amongst young persons of the fair sex, who also contract the custom of biting their nails with their teeth.

2dly, When the nails are too thick, hard, or not well polished, it may be proper to scrape them slightly on the upper part with a piece of glass, or a pair of scissars, &c. when they are hard, too little polished, or too thick, always taking care not to advance too near the root, where the nail is thinnest, and almost adheres to the skin. The epidermis there forms a kind of boulder, or narrow border rising over the nail, which must not be entirely destroyed, at least as far as the skin, which would otherwise be exposed to open and fall in scales that give deformity to these parts, and render them painful, in which there sometimes arises excrescences that occasion small ulcers.

3dly, The nails of the feet, by being compressed by the shoes, and from the corns formed on the feet, enter into the flesh, especially on the sides of the toes, and there occasion very great pain. As the hardness of the nails is the principal cause of these accidents, they ought to be often washed, scraped, and polished with glass, &c. till they are sufficiently flexible. People sometimes find pernicious effects from shortning their nails, when they have the imprudence to cut them too near the flesh. The
toes

toes suffer greatly by this means, and the pain that it sometimes occasions is scarcely to be borne.

These observations will perhaps appear but of little consequence to persons who do not perceive the value of every thing in which health is concerned. A gangrene, the loss of the fingers or toes, and even death itself, have, more than once, been the fatal effects of the methods put in practice for preserving these parts. Such is the delicacy of the human mind, that its functions are disordered when the body feels the least inconvenience. A nail irregularly bent, is sufficient to shake the patience and firmness of the greatest philosopher. We ought not therefore to neglect the smallest particulars ; for every thing is interesting that belongs to the animal œconomy. The famous Rondelet did not disdain to write a treatise on painting the face, which we shall have occasion to mention in the prosecution of this work.

The example of so great a man authorizes us to recommend the practice of which we have just been treating. The care of preventing real inconveniences, and indicating the means capable of remedying them, are much more useful than the advice given in relation to the embellishment of the body.



A N
E S S A Y
O N T H E
M E D I C I N A L E D U C A T I O N
O F
C H I L D R E N.

B O O K I I I.

Of the DISEASES of CHILDREN.



CHILDREN scarce ever arrive at the age of puberty, which ought to be regarded as the period, solution or crisis of infancy, and which we have compared to a disease, which it resembles in its symptoms, steps and progress; without suffering some of the indispositions we are going to describe. Some of these arise from a virus communicated by fathers, mothers, and nurses; from the negligence of persons intrusted with the education of children; from the delicacy of their organs, the nature of the aliments they receive, the quality of the air they breathe, and the like: others proceed

proceed from fatigue; from growth, from a relaxation, occasioned by the abundance of the humours, which is itself produced by the weakness of the skin, and by these very humours being conveyed to the head, &c.

The inevitable revolutions produced in the animal œconomy, and which shew themselves with greater or less swiftness by sensible signs, are sometimes salutary, and we are obliged to suffer them to subsist, and even to preserve them, or to remove them with precaution. At other times they are hurtful; we must then destroy or diminish the cause by which they are produced, by stopping its progress and changing its order or direction.

These are the general views that ought to be proposed in the treatment of the different diseases of children, which we shall divide into four chapters: In the first of which we shall treat of acute diseases, and in the second of those that are external: in the third, we shall treat on organical diseases, and in the fourth, of chronical diseases, most of which ought to be considered as hereditary.

CHAP. I.

Of acute diseases.

SECT. I.

Of convulsions.

EVERY body knows, how greatly children are subject to that kind of spasmodic disease, called by physicians convulsive motions,
P and

and which is better known under the general name of convulsions.

If we consider the action of the air on the skin and lungs of infants, at the moment of their birth, and the effects of respiration, as the extension of the lungs, the motion of the diaphragm, the repeated compressions of the viscera of the lower belly, which accelerate, or retard the course of the humours, and which by this means occasion several stoppages in the brain, breast, skin, &c. if we consider the delicacy and sensibility of the nerves of young children, which Hoffman has very judiciously observed; and, in short, the want of the use of all their parts, and the little harmony which reigns between their different offices, we shall not be surprized at their so often experiencing convulsive motions. This disease still more commonly depends on bad digestions, on a mass of acid juices, and slimy matter sticking to the duodenum and stomach. If these take, in the *primæ viæ*, a turn proper for the acid fermentation, to which Harris refers all the diseases of children*; if their weak and relaxed organs easily sink under the weight of the remaining aliments; if the viscera acquire, as they will do, a kind of varicous disposition, which promotes the stoppage and collection of humours; (as is proved by a multitude of experiments) and if these indigested juices irritate the intestinal canal, act upon the nerves, disorder their vibrations, &c. a physician in the treatment

* Richard Conoyers has just copied this opinion from Harris, without quoting him, in his dissertation on the diseases of infants, inserted at the end of Huxham's treatise on fevers.

of the convulsions of infants, ought to confine himself to the correcting of the bad qualities of these humours, to disengaging the vessels in which they have staid for too long a time, to rendering them more moveable, and to diminishing their quantity. Experience proves this indication to be the most just.

Vomiting is preferable to all the other ways of evacuation, from the ease by which it is excited, and from the speedy effect, and slight convulsions it produces in the organ of digestion, whose shocks are as favourable in cases where the reestablishment of the health is required, as the expulsion of the viscous matter by which it may be irritated. 'Tis true this method is opposed by prejudice, and people cry out, how is it possible for the delicate viscera of infants to resist the efforts occasioned by remedies so violent as emetics? But can such an objection be allowed to have any weight with those who have the least knowledge of the animal œconomy? Do not the mobility, softness and flexibility of the organical parts of infants, the abundance and less viscous quality of the humours favour the action of emetics? Their viscera the more easily obey the action of these remedies, as they are not dried up like those of adults. Can we be in any fear from the irritation of fibres that are loose, moist, and but little rigid? Their too great flexibility sometimes hinders any impression being made upon them by the most certain emetics, and we are frequently obliged to increase the dose.

Among the different vomitories made use of, emetic tartar, rightly prepared, appears to

me to be the most certain and commodious in the diseases of infants. It may be mixed with any kind of syrup, or with wine, milk, sugar, &c.

Harris proposes * ipecacuanha as an emetic superior to all others in the diseases of infants. " We may, says he, cause infants of one or " two years old to take about fifteen grains of " this powder, because it is a mild emetic, " and does not necessarily require the pour- " ing down after it of any diluting liquor, so " that it may be given to infants with the less " danger; in a word it dissolves, loosens, and " brings away, better than any other medi- " cine hitherto made use of, the viscosities with " which the stomach is overloaded." But the dose of ipecacuanha proposed by Harris is too large for many infants, especially of one or two years of age, and it is often very difficult to make them take this powder.

Hoffman seems more cautious than Harris with respect to the dose of emetics, and orders only one third or a quarter of a grain of emetic

* Verumtamen si magna illuvies humorum feroforum ac noxiorum in ventriculo redundat & tunicas ejus adeò oblineat, ut functiones naturales planè pervertat, atque tam alimenta quàm medicamenta sine nausæâ & vomitu ventriculus nequeat paulisper retinere, possunt quandoque cum fructu & satis tutò ipsis anniculis aut bimis infantibus exhiberi radicis ipecacuanhæ circiter grana quindecim. Quippè pulvis iste blandè emeticus, nullam post se liquidorum aut potulentorum ingurgitationem necesse postulat; & emeticis modò dictis (scilicet sale vitrioli; vino benedicto, tartare emetico) longè mitior est, & operatio tenellis multò securior. Denique humores viscidos ventriculo impactos, frequentem cruditatem ac deinde fluxuum causam, præ aliis omnibus emeticis in sylva medica reperiundis, expedit, solvit & paulatim exantlat.

tartar,

tartar, when the convulsions are caused by milk curdled in the primæ viæ ; and he would even have this vomit given at the time of the remission, and not in that of the paroxysm.

For my part, I can justly say, that I have often prescribed emetic tartar in this case, in a larger dose, with great success. I have also sometimes given it in the time of the paroxysm, the patient being senseless and without motion, his extremities cold, and he himself almost lifeless. It is then necessary to strike a decisive blow, in order to remove the stoppages of the breast and brain. It would be running too great a hazard to wait for the return of a calm, not only because the patient might sink under the force of the paroxysm ; but also because a calm seldom happens without leaving dangerous impressions on the viscera, which the physician ought to prevent.

Though purgatives are less efficacious, and less easily managed than emetics, they are nevertheless of great use in convulsions ; but as their action is slow, and as those proper to be given to young children, work only when the primæ viæ are disposed to the evacuation, which seldom happens in the time of the paroxysm, we are obliged to wait till the convulsions have ceased.

It is not easy to fix the kind of purgatives that best agree with children ; for if, on the one hand, the delicacy and sensibility of their solids seem to require our preferring the mild purgatives, as being incapable of producing any irritation ; on the other, the flexibility of these solids (as we have already observed) makes them frequently fall into a dangerous inaction, from

which they can only be drawn by the help of the strongest purges. In a word, all attentive physicians cannot help observing, that children are, in proportion, more difficult to be moved than adults. Rhubarb, diagridium, and mercurius dulcis, are almost the only purgatives made use of at Montpelier, for the diseases of infants. I have been convinced of the advantage of this method by my own experience. Indeed oils, syrups, manna, and other mild purges are sometimes proper; for the most tender age, and a very delicate constitution will not admit of any other; but I can safely assert, after having made observations with all the attention I was capable of, that in general, these medicines only serve to give one or two stools, and at length pass off themselves, without carrying with them the viscous matter which is the principal cause of the disease. This kind of evacuation ought to be looked upon in the same light as the indigestions, or looseness procured by eating certain kinds of fruit, which neither express the glands of the intestines, nor increase their action, and which only produce a slight irritation that is attended with scarcely any salutary effects. These mild purgatives, therefore, appear to me, more proper to augment the accidents than to disperse them.

I cannot too strongly recommend the use of absorbents in most of the convulsive motions of infants: their union with the acids that lie in their stomachs forms a kind of neutral salt which becomes purgative. Every body knows, especially since the publication of Mr. Harris's work, the use of these remedies in the diseases of children; we ought not however to follow scrupu-

scrupulously the sentiments of that author, who considers them as specifics in all cases; they are only proper in some of them, and always become more efficacious when joined to purgatives. It is of great importance not to confound them either with the boles or argillaceous earths, which are destitute of all medicinal qualities, and are only a useless load, often prejudicial to the stomach*, nor with the gems which, on account of their scarcity, were so much esteemed by the antients, and which have no more virtue than the most common pebbles. Crabs eyes, coral, magnesia alba, common chalk, and calcined egg-shells, are the true terraceous absorbents, which should always be preferred to saline absorbents, such as the lixivial salts, or the fixed alkalies, the least charged with a neutral salt, which answer almost the same purpose as the terraceous absorbents: but in their use, we must always have a regard to their acrimony, the inconvenience attending which should be prevented by giving them in small doses, especially to children, inclosed in a convenient vehicle, such as syrups, suitable conserves, &c. in order to hinder their action on the mouth and œsophagus. In short, when we would have the terraceous absorbents produce any good effect, we must give them in a large dose. However small the quantity of acids that lie in the stomach and duodenum may appear, it is commonly sufficient to saturate one or two drams of absorbent powder, and to render it purgative. This good effect affords fresh

* Such are bole armoniac, the different sorts of terra sigillata, and a kind of talc, commonly called chalk of Briançon.

conviction, that absorbents are here properly recommended ; for though they are sometimes used in a looseness, under the title of astringents, it is certain, that they are no otherways useful, even in this case, than as they become purgatives. Emetic tartar, and the purgatives mixed with the confection of hyacinth, and a small quantity of magnesia alba, prepared coral, &c. is an excellent preparation for the diseases of infants, a medicine that is at once purgative, emetic, absorbent, and cordial : it was recommended by the greatest physicians in antiquity, and the moderns have been greatly to blame in not making use of it.

Narcotics are also sometimes properly administered in convulsions, especially when preceded by purgatives ; but too much cannot be said on the abuse of these medicines, whose good effects are most commonly only specious appearances, as has been already observed in the fourth chapter of the first book. The remedies called antispasmodics are preferable to them ; they efficaciously calm convulsions, without promoting sleep : the most approved in the diseases of infants, are theriaca, distilled aromatic waters, as orange flower, cinnamon, mint-water, &c. the aromatic oily spirits of sylvius, the powder of gutteta, &c. These medicines bring the nerves to their natural tone, and restore their strength, without producing any dangerous irritation, &c. But we ought never to make use of them till after we have tried emetics, purgatives, and absorbents differently combined.

People will perhaps be astonished at my not having advised bleeding in the convulsions of infants.

infants. It is true, according to the sentiments of a great number of physicians, it is scarcely possible to do without it*. How, they will say, can you suppose so many irregular motions in the vessels of infants labouring under convulsive attacks, without their producing obstructions which bleeding alone can prevent or remove? But, does not the flexibility found in the solids of infants, which seems to expose them more to inflammatory stoppages, render the consequence of these stoppages less to be feared, and consequently bleeding more useless, since it is observed, that its principal effect is to slacken and relax? Do we not every day see infants attacked with a violent fever, for which they would have been many times bled, if their vessels had not been found to discharge themselves without bleeding? These observations oblige me not to advise bleeding in the diseases of infants so often as in those of adults. There are, however, cases in which it is indispensibly necessary: but they being very rare, ought to be considered as exceptions to general rules, which it is the part of an experienced physician to modify according to the nature of the symptoms that attend the convulsions. I speak here only of the convulsions occasioned by a collection of slimy matter in the viscera of the lower belly, which are, doubtless, those which infants most commonly suffer. When they are the effect of dentition, and the irritation of the periosteum of the jaws, we ought to prefer the method pointed out in the sixth chapter of the

* See Book I. Chap. III. of this work.

first book. It should also be observed, that many persons improperly attribute to the cutting of the teeth, all the accidents that arise in the time of infancy; they make this the sole cause, though it is evidently complicated with many others of a more serious and dangerous nature. In fact, it is difficult enough to conceive, how the insensible and gradual pulling of the soft membranes of the mouths of infants should produce convulsions, while the most violent pains in the teeth, and even drawing them, does not produce this effect in adults. It is therefore to be presumed, that the convulsive motions of infants, almost generally attributed to dentition, commonly depend on some disorder in the *primæ viæ*, and that this at least necessarily contributes to it; and the good effect of purgatives in this case, furnishes, methinks, a new presumption in favour of this opinion.

SECT. II.

Of the cough.

The cough of children is much seldomer pectoral than situated in the throat or stomach: the glands in the throats of children are extremely soft and spongy: the thick glutinous juices they secrete are extremely viscous, and easily stopping there, form masses that become so many points of irritation which excite the cough. This disposition of the glands of the throats of children, as has been observed by Areteus *, renders them more subject than

* See the letters I have given on this subject, in the French Mercury of the month of October, 1749.

adults to gangrenous quinseys, without reckoning the conveyance of the humours to the head, which is common enough at this age, and which Stahl has mentioned in the work we have already cited.

Besides, the superior orifice of the stomach of children being so sensible, and the diaphragm so moveable, this last organ has not yet acquired the power and habit of contracting with the necessary ease and uniformity; can we therefore be surprized, that the least irritation in these parts produces the cough called stomachic?

This is commonly very violent, and accompanied with very extraordinary efforts; so that one is ready to imagine, the infants attacked by it are on the point of being stifled; their face turns of a deep red, they fall into convulsions, vomit, sweat, and twist their bodies in a manner capable of alarming those who have not seen these kind of coughs, known and described under the name of the whooping-cough.

Now, that particular convulsion of the throat, lungs, and diaphragm, which constitutes coughing, being excited by the same irritation which in the convulsion of the stomach is caused by the slimy and acid matter, the very same treatment we have pointed out for convulsions in general, should take place, with respect to this cough, which differs from it only in its situation.

I have often seen coughs that have most obstinately resisted syrups, and the pretended lenitives, as pectoral lozenges, whey, rice gruel,
&c.

&c. yield to a dose of ipecacuanha, to absorbents, or purgatives*.

But though we have asserted from observation, that all the coughs of children are stomachic, and that therefore the treatment we have just prescribed, is that which is proper in most cases, we must nevertheless distinguish, with great care, those much more uncommon ones where a child's cough is idiopathic. These kind of coughs, that only depend on some fault in the organs of respiration, not having any particular character in infants, enter into the general class of the diseases of the breast, as well as those whose true cause is seated in the liver, spleen, mesentery, &c. the treatment of which we shall give when treating of swellings.

S E C T. III.

Of Vomiting.

The vomiting of children most commonly proceeds from a spasmodic disposition of the stomach and throat, of which it is but a symptom. This requires particular treatment; but belongs to the class of convulsive diseases, of which we have been hitherto treating, and ought to be ranged with the guttural and stomachic cough, with which it is usually attended. It should therefore be treated like those diseases, by making use of emetics, purgatives, absorbents, &c. with the precaution of first using oily medicines, fomentations and emollient

* The use of chacril is frequently salutary in these kinds of coughs; and I have frequently seen it succeed, not only with infants but with adults.

topics, if the irritation is too violent, and will not permit our having immediate recourse to the remedies just proposed, which are the only ones proper for curing the disorder.

S E C T. IV.

Of a Looseness.

We have already observed, in the second chapter of the first book, that infants, from their birth, experience a kind of critical looseness, if this name may be given to the evacuation of the meconium: a looseness in young children is not easily defined from the consistence of their excrements, which are commonly fluid among those that suck: However, the different colours, offensive smell, and a certain peculiarity in the fæcal matter; the loss of appetite, heat, the gripes, wakefulness, an itching in the skin, weakness, leanness, and lowness of spirits, are much better diagnostics of this state.

It is sometimes preceded by a cough and vomiting; in which case we have reason to suspect the stomach's being clogged with a slimy matter, and to prescribe emetics. But if the looseness is not accompanied with a vomiting and cough, it is to be presumed, that the matter, by which it is occasioned, is lodged in the colon and other intestines, and that clods of milk curd, slime proceeding from a bad digestion, parts of fruit, or indigested aliments, commonly eaten by most children, stick to their internal membrane, and there frequently produce an inflammatory irritation, which is distinguished by the pain and swelling of the belly. The
tenacity

tenacity of these juices sometimes occasion such a disorder in the peristaltic motion of the intestines, as is followed by the most fatal symptoms, a dysentery, tenesmus, hickup, retention of urine, &c. These symptoms ought to fix the whole attention of the physician, who should then for some time lose sight of the cause that produced them. Clysters of milk, and tripe liquor, emollient fomentations, embrocations, composing draughts, rice gruel, chicken-broth, oil of sweet almonds, whey, emulsions, &c. are the principal remedies to be used in these cases. A less cautious treatment, or that of immediately attacking the cause, would not be free from danger; nevertheless, emetics and purges being the only remedies capable of producing a cure, it is necessary that they should be used as soon as possible, and that we should not suffer ourselves to be frightened by contraindications. Practice teaches us to distinguish pains that are really inflammatory, from those that are caused by the twitching of the membranes of the intestines, and not to behave with the too scrupulous circumspection of physicians but little accustomed to see diseases, from the fear of increasing the irritation and disorder expressed by the symptoms we have already described.

There are loosenesses produced by a spasmodic contraction of all the intestines, and in which the slimy matter is commonly in a very small quantity, which are found to yield most easily to narcotics, absorbents, slight cordials, and gentle diaphoretics, such as the decoction of wild poppies, scorzonera, holy thistle, &c.

In short, a looseness is sometimes occasioned by the softness, relaxation and want of activity of all the viscera of the lower belly; for which emetics, and the milder cathartics are extremely proper. The tincture, or decoction of rhubarb given in a small dose, and continued for some days, passes with reason for a specific in this last case. It restores the parts affected to their natural tone, strengthens digestion, and supplies the place of the bilious juices that are wanting, or are too unactive in children. It opens the urinary passages, and, in fine, seems to act upon the whole mass of humours in the nature of an alterative.

S E C T. V.

Of Worms.

Every body knows, that infants are very subject to worms: physicians observe, that there is found in them a particular disposition favourable to the unfolding and growth of these insects, which however is in a less degree in some subjects than in others. I shall not here enquire into the opinions that have been entertained on the origin of worms and their different species; for these questions belong rather to the naturalists than to those only employed in the cure of diseases. The last ought to be satisfied with knowing that all kinds of worms may be reduced to three different species, viz. the round teretes, the solitary tænia, and small worms, or the ascarides: the extraordinary worms which seem to spring from these three classes, are only varieties of one or other of them,

them, or monstrous productions, which merit no particular attention from the physician.

The first consideration truly medicinal which presents itself on the subject of these insects is, that people too commonly stop at their presence, and attribute to them many disorders in which they have very little concern. Not that I would deny that the presence of these insects, and the motions, shocks, and irritations caused by them, occasion many dreadful symptoms; but it is nevertheless true, that a physician ought to carry his views still farther, and mount even to the particular disposition that has favoured their unfolding themselves.

In reality, can there be any doubt, that a particular disposition of the organs and digestive juices, is absolutely requisite for the production of worms? The aliments with which adults are nourished, as well as those taken by children, are equally filled with the eggs of these insects. But if, as experience shews, they are commonly hatched in the last, and very seldom in the first, is it not evident, that they find in the one, a matrix and a proper degree of heat, which they do not find in the other? Now these necessary conditions, are those truly morbid dispositions which a physician ought either to destroy or correct; this is the true object of a radical cure.

We have a glimpse that the state of the solids favourable to the generation of worms consists in a kind of relaxation; and that the vicious qualities of the humours which concur to the same effect, is nothing but their turning slimy and sweetish. From these two causes
there

there may be easily occasioned stoppages of a part of the aliments in the folds of the intestines, or in the kind of purses formed there; and an alteration of the matter thus retained, proper for hatching the eggs, and at length furnishing a convenient aliment for the young worms.

In consequence of this conjecture it is believed, I think, without any foundation, that when the worms are arrived at a certain growth, they become the cause of all the accidents that appear in the diseases of children. I confess that the presence of these insects may, to a certain degree, be hurtful; but I cannot persuade myself, that they consume all the chyle destined for the nutrition of the infant, that they gnaw and pierce the bowels, ascend into the œsophagus, nestle in the different folds of the intestinal canal, and interrupt its motions. The following are the reasons which authorise my rejecting all these opinions.

First, Worms live on very little nourishment, and we do not certainly know whether it be really chyle which they chuse. I have seen infants extremely subject to worms who were at the same time very fat.

Secondly, I do not know that naturalists have discovered in these animals the organs proper for boring and piercing the intestines. I am not ignorant that Fabricius Hilden, and other observers relate, that they have found worms in the lower belly. I have myself seen holes in the thin bowels of children who died of a verminous disease, through which the worms and fecal matter were spread in the ab-

Q

domen;

domen; but I am persuaded that these openings were less the work of the worms, in the sense commonly meant by it, than of the inflammatory and gangrenous contraction and twisting of the intestines, caused by the matter sticking to their sides. This explication of these accidents, which seldom happen, appears to me much more natural, than that drawn from the pretended voracity of these worms, their biting, &c.

Thirdly, Worms do not go out by the œsophagus and the stomach, without their being carried along by the torrent of the excretions, and by the direction, whether natural or determined by medicines, of the organs of digestion. They are, in every sense, carried into the stomach and intestines; and are themselves the victims of the convulsive motions attributed to them.

Fourthly, It is easy to see, by shutting up some of these insects in a vessel, the little vigour they are possessed of, notwithstanding their being so very lively, and how little they are capable of opposing the motions of the intestinal canal.

I support what I have here advanced by the following observations, which have, doubtless, not escaped the notice of any experienced physician. How often do we see infants who have all the symptoms of their having worms, cured without voiding one of them? People very injudiciously consider the slime found in their excrements as pieces of putrified worms, or the nests of these insects. The great resemblance there is between them may deceive more knowing observers, but it cannot impose upon a physi-

physician. Consequently, in cases where worms really exist, the same productions are not to be considered as symptoms which they have produced: the less ought they to be attributed to them, as there are adults who almost habitually void worms, without being subject to a twisting of the guts: and indeed the children who have worms of the largest size, are not always those who suffer the most fatal effects from the diseases that are believed to be solely occasioned by worms.

These observations afford a necessary and useful reflection, which is, that the public habitually employ vermifuges in all the diseases of infants indiscriminately; that being accustomed to consider them as so many specifics, they never call for the assistance of physicians till the disease has made a considerable progress, and the remedies of empirics have encreased its violence and danger; that from this custom proceeds the most fatal consequences; and that, in short, of all the indications that present themselves in verminous diseases, the most precarious is that which is thought to be a proof of the worms being killed. We ought however to confess that amongst the vermifuges most used, there are many that attack the root of the disease, and are therefore really proper to produce a cure. Such are those taken in the nature of purges, as mercurius dulcis, æthiops mineral, the oils obtained by expression, &c.

But it were to be wished, that most of the other vermifuges were discarded by all who pretend to interfere in the diseases of infants, as well as the amulets, superstitious practices

and incantations*, which people have for a long time imagined to have a marvelous efficacy against worms, which are now only used by the good women and the most ignorant of the people.

The antient physicians themselves have had, with respect to this disease, very singular opinions, which we shall not repeat : these were a kind of tribute which they owed to the ignorance of the age in which they lived. We shall satisfy ourselves with examining the treatment that appears most methodical, and best founded on reason, to which many persons have recourse.

* We shall here give one of these superstitious practices, that is not less worthy of censure for the irreverence with which our holy mysteries, and the ministers of religion are mentioned, than it is ridiculous and useless.

In one of our southern provinces, when a child is plainly found to have worms that have for some days resisted the ordinary assistance of medicine, the women in the secret usually extend the child on a table, about whom they light nine small wax candles ; for there must be neither more nor less than that number. These candles being lighted, the principal actress posts herself at the child's feet, and says with a singular enthusiasm, mixed with the most extravagant grimaces and jestures, *Nau bermis qu'a Job, de nau qu'en a trop, de nau bienguen à oueist* : that is, " This little Job has nine worms, they are too many by nine, let them be reduced to eight." They then successively extinguish all the other candles, pronouncing each time, with the same tone and ceremony, the formula of incantation just mentioned, till they come to the last, and Job has only one worm : when they conclude with saying : *Qu'aquet un qu'a je autan de poudé sur Job, couen à part à la misso lou qui l'enten darré la caréranieffo* : " May this worm which is the only one that remains, have as much power over Job, as he that hears mass behind the priest's servant has a part in that sacrifice."

Worms,

Worms, say they, are as much afraid of bitters, oils, and mercurials, as they love milk diet, sugar and other sweet things. This reasoning authorises almost every body to make children who are attacked by this distemper, swallow oils and bitters, and afterwards to give them clysters of milk, in order that the worms may be drawn towards the rectum, as well by their fondness for the sweet aliments as by the aversion they feel to the bitters, &c. This method appears natural, and is therefore almost generally followed, and I should not be much surpris'd, if it was adopted only by men who were but little acquainted with the anatomy of the viscera. But on what foundation can physicians establish such a method? "Prodest, says Hoffman, clysterum ex lacte & melle paratum ano infundere, ut bestiolæ istæ dulcedine allatæ, ex oculis suis ad intestina faciliùs descendant*." That is, it is useful to give children troubled with worms, clysters prepared with milk and honey, in order that these little animals, drawn by the sweetness, may leave their cells, and the more readily descend into the lower intestines.

I cannot help believing, in spite of Hoffman's reasons, that if the worms were in the large intestines, it would be to little purpose to feed them there; and that we could not take a better method to make them continue in them; for clysters of milk and honey are extremely proper for augmenting the mucosity of the matter in which they live. If the worms are in the stomach or duodenum, of what service

* De morbis infantum, cap. XI.

can this bait be of, that is pretended to be presented to them? If it be proved that clifters cannot reach the stomach, how should the worms be determined to take a long journey to arrive at the colon, where they will find the milk of which they are supposed to be so greedy? How can we suppose that its smell should reach them? The shortest way that can be imagined for the communication of this odour, is its penetrating through the membranes of the colon and those of the stomach, on which this last intestine is supported: but who will teach the worms that no other way can lead them to the sweet liquor, but the winding road of the long and narrow intestines? Besides, can the worms at their pleasure, or as their appetite directs, pass from one intestine to the other? They are tossed and carried every way against the sides of the stomach and intestines, especially in a fit of the twisting of the guts; they form many knots, are almost always found twisted one within another, and inclosed in a kind of purses, which they do not leave till the parts come to be re-established; is it not therefore evident that worms are almost always passive, in all the accidents attributed to them, and that they follow the different directions of the bowels and stomach, as well as all the other matter fit for evacuation?

As to the different remedies that are regarded as specifics for killing worms, I have been willing to inform myself by experiments, which were the most efficacious. I have put those that were living and well fed into vinegar, wine, the decoction of wormwood, water, oil, &c. and it seemed to me that these two last liquors weakened

weakened them most, and all the others appeared to revive them. How should bitters then be capable of killing them? Fabricius Hilden has found them in the gall bladder.

Redi, and many other anatomists, have observed, that oils and mercurials kill worms: but can we flatter ourselves with making children, in a fit of the gripes, take as much oil as will be necessary to fill all the intestines and drown all the worms? For we know that oils have no other property in killing worms but their stopping up all the pipes that open on the surface of the bodies of these animals. Is it not also known, that oil most commonly stops in the stomach or duodenum, where it forms a considerable weight, that it turns rank, and sometimes passes by the fundament, entirely clotted in small masses irregularly rounded.

As to mercurials, there is no-body ignorant that they provoke a salivation, spoil the teeth, and can only be given in boluses, and that children do not know how to swallow medicines under this form. In short, verminous disorders require speedy shocks; it is necessary to unload the stomach, to excite the action of the solids, &c. Emetics are therefore preferable to mercurials, whose purgative quality is slow and uncertain.

I am not afraid to advance here what my practice has often made me see confirmed. All these pretended specifics against worms are more proper to amuse assistants, to strengthen their prepossessions, and to encrease the irritation of the intrails, than to cure the sick. Such are those greatly recommended by Hoffman, viz. *assa*

fetida, sagapenum, apoponax, and bitter almonds, which I have seen produce very obstinate tenesmuses, dysenteries, &c. In a word, I consider verminous attacks plainly distinguished as the symptoms of a putrid fever, that is so much the more dangerous, as it is prepared at a distance; that the relaxation and insensible and gradual twisting of the intestines have destroyed their elasticity, and favoured the retention of the slimy matter and the unfolding of the worms. Now it is precisely in this state of the intestines, that the cause of putrid fevers consists, and which characterises the true foundation of the verminous diseases, of which the presence of the worms is consequently only a symptom. But as the state of relaxation in the intestines, which favours the unfolding of the worms, is not very different from the natural constitution of infants, their verminous disorders are attended with less danger than those of adults. These last seldom survive a malignant putrid worm fever. The considerable changes that must happen in the bowels of adults, in order to render them fit to form and retain the matter favourable to the unfolding of a great quantity of worms, totally disorder the tone of those organs, and overturn the order of their oscillations to such a degree as almost infallibly to expose them to a gangrene.

It must, however, be confessed, that infants are subject to very sudden and terrible accidents, which are considered as verminous disorders, but cannot be taken for putrid fevers, since it frequently happens that a few hours after the attack, all accidents cease. In this case, infants are suddenly seized; they suffer convul-

sive

five motions, which it is always prudent to suspect, and which are commonly owing only to the slime, or other matter irritating the intestinal canal, among which, worms are sometimes found. This is no reason why we ought not to distinguish verminous disorders, in which the presence of worms may be only one of their causes*, from the disposition to worms, and the true putrid malignant worm-fever.

As to the treatment of the different disorders proceeding from worms, the following seems to be built upon the most solid foundation. 1st. The general method in which the physician is to proceed, in order to attack the disposition to worms, is to produce in the primæ viæ that salutary revolution which is sometimes the effect of time and age, but which may be favoured by remedies, and which consists in re-establishing, in these parts, by little and little, that natural course and order of the excretions, that are the consequences that proceed from this revolution. Decoctions of worm-wood and centaury, the extracts of juniper-berries and rosemary, purgative mineral waters, bitter cathartic salts, &c. answer all these purposes: But if this disposition is accompanied, as is sometimes the case, with a certain dryness in the tongue, some degree of heat in the bowels, and, in a word, by an inflammatory dis-

* Though we do not believe that worms are very dangerous, with respect to children, yet we do not, however, support the ridiculous opinion of Vercelloni, who supposes that there are legions of worms shut up in the thyroide gland, from whence a certain number is detached to go to the stomach, and there perform the digestion of the aliments.

position manifested by the state of the pulse, the skin, the excretions, &c. we ought then to prescribe slight acids, composing draughts, oils, emollient clysters of milk, meal, or other proper decoctions.

2dly, Sudden verminous disorders ought to be referred to convulsions, of which we have spoke in the first section of this book, and treated according to the method there pointed out ; that is, recourse must be had to emetics, absorbents, cordials, and antispasmodics : But, as it most commonly happens, that infants neither can nor will swallow many medicines, we ought to prefer the most useful and active, to those that are of a less pressing necessity, as purges, for example, to stomachics, bitters, &c. We frequently meet with good effects from embrocations, and liniments made with the oils of camomile, melilot, worm-wood, bays, &c. from fomentations prepared with the decoction of mint, scordium, and some drops of the tincture of myrrh, aloes, oil of peter, &c. These are the medicines known to be most efficacious in verminous disorders.

3dly, Putrid worm-fevers, as have been already observed, enter the class of those fevers that are the most malignant and dangerous, especially in adults. The degree of the putrefaction of the humours is then so considerable, that there soon results from it a gangrene in the solids ; and all the assistance of art, says M. Quesnoy, in his excellent treatise on fevers, are then useless.

In regard to children, as their constitutions are more favourable to the formation of worms, there cannot be supposed so great a disorder in
the

the organical disposition of their stomach and intestines, this fever is consequently less dangerous. The general treatment of these kind of fevers in adults, is equally proper for children; we ought only to pay a due regard to their age, and all the circumstances that depend on it.

The presence of worms in the intestines may be known by a particular smell that is not to be described, by nausea, vomiting, the food arising sour into the mouth; by the hiccup, and sudden changes in the countenance; children who are troubled with them are pale and red by turns, the nose is as white as wax, the tongue is rough, the pulse undulating and convulsive; they are subject, during their sleep, to terrors and irregular starting; they feel an itching in the nose; their extremities are cold, they fall into fits, and remain for a long time in a general convulsion, the true image of death.

We shall finish this section with a description of the *tænia* or solitary worm. This worm is more uncommon among children than with adults. “ People very improperly, says “ Baglivi, attribute the extent of this insect to “ the abundant nourishment taken into the in- “ testines: let a pigmy eat as much as he will, “ he will always remain a pigmy; we must, “ therefore, suppose the *tænia* endued with the “ peculiar property of growing and extending “ itself out in length.

“ A person may be known to have the soli- “ tary worm by a continual spitting, great pale- “ ness, and the weakness of the whole body, by “ sometimes loathing, and at others having an “ irregular appetite for the same food; by pains “ felt when fasting in the region of the liver, “ the

“ the violence of which sometimes suddenly
 “ stops the voice, by a very offensive breath,
 “ slimy stools mixed with small pieces of worms
 “ resembling the seeds of cucumbers, which
 “ are so many fragments of this flat worm,”
 &c.

The same author mentions an infant of two years old, who voided a living worm twenty feet in length, which would have been still longer if the mother had not broke it with her fingers. Milk diet, Baglivi continues, ought to be considered as the most common cause of the formation of the flat worm ; it is therefore most frequently observed, in countries where the inhabitants feed almost all the year on an aliment so liable to turn sour.

M. Andry advises the making use of mercurials, bitters, and especially fern root, not only against the *tænia*, but against all other kinds of worms. I have, however, frequently made use of that root, without any success. Emetic tartar has always succeeded better with me, in all the disorders proceeding from worms. The following is an observation I made at Agde *, about ten years ago.

The daughter of an apothecary of that town, who was twelve years of age, had for some time all the symptoms that attend having the solitary worm. She had in vain taken all the remedies mentioned in M. Andry's work. After being seized with some convulsive motions that were attributed to this worm, she grew considerably lean : but this leanness might have been the effect of the beginning of pu-

* A small town in Languedoc.

berty, or of the medicines she had made use of : for she had neither a loathing, a fever, nor a looseness ; but, on the contrary, had a ruddy complexion, brisk eyes, a gay air, and, in a word, wanted nothing but plumpness. At her return from the country, where she had spent some days, she was seized with a shivering, a violent pain in the head, and the symptoms of a putrid fever. She vomited up a great quantity of slime and bile, and voided downwards part of a flat worm half dead, eight or nine feet long. One or two days after I prescribed emetic tartar, with a view to bring away the rest of the worm, with the bilious matter that occasioned the effects of the disease. This emetic produced greater effects than I expected : In short, within fourteen or fifteen days she was cured of the putrid fever, and was at length entirely freed from the solitary worm.

We shall add here, in a few words, the remarks we have found in the best authors, and those we ourselves have made on the subject of worms.

First, Children are more subject to worms than adults ; girls than boys ; those who eat a great deal, than those who are more moderate in their diet ; those who mix all kinds of aliment with milk, more than who adhere to milk alone, or who are deprived of it when they eat meat, fruit, &c.

Secondly, Children are seldom subject to have the worm called ascarides till after the age of puberty. Disorders proceeding from worms are more frequent at seven or eight years of age, than either in a more early, or a more advanced

vanced age : in the spring and autumn than in winter and summer.

Thirdly, In the beginning of all the diseases of children, we ought to suspect the small-pox and worms.

Fourthly, Children who are very subject to disorders imputed to worms, commonly die before they are seven or eight years old. Stools which contain dead worms are a worse sign, than those in which they are found alive ; especially when dead worms are voided in the remission of a fever.

Fifthly, Worms brought up by the mouth or fundament tinged with blood, shew that there is great danger.

Sixthly, In all the verminous affections of children, when the respiration is interrupted, the extremities cold, the belly swelled, the eyes immoveable, and the eye-lids half shut, and in a convulsive state, we may be certain that death is at hand.

S E C T. VI.

Of Swellings.

Sydenham has very well observed, that the slight swelling of the belly in children is a good sign in acute diseases. It in reality proves, that the viscera of the lower belly resume their office ; that the morbid matter throws itself into its excretory vessels, and is there accumulated ; and, in a word, that nature discharges itself of this useless load, by the most commodious and the most general strainers. We should not therefore regard this transportation
of

of humours as attended with any dangerous consequences, nor too cautiously endeavour to destroy the swelling it occasions; for it generally disperses of itself, and the physician is only to assist nature with a little of the tincture of rhubarb, or some other slight restraining purge. The largeness of the belly is not always a bad sign, even in adults; on the contrary, it is often attended with a greater freedom of respiration. But, in order that this extension of the belly be free from all danger, it must be equal, supine, and attended with a degree of flexibility that supposes a proper distribution of strength, in all the viscera of the lower belly.

The case is not the same with respect to the swellings and irregular tumours frequently formed in the belly of infants, and which indicate a loss of that equal balance which ought to be maintained in the organs contained in the abdomen.

The spleen is very subject to this method of conveying humours, from the sluggishness of its vessels. All authors speak of those stoppages in the vessels, which frequently degenerate into real hard tumours; and here emollient and resolute fomentations; the application of discutient plasters, and the use of purges and aperatives, ought to be considered as the most efficacious means of removing this disorder. Purges especially are the more necessary, as the stoppages of the spleen are sometimes accompanied with an obstinate constipation, which it is of importance to remove, especially in children, who are then farther from their natural state, which, in this respect, consists in a disposition

position to a looseness. But it must not be imagined that strong purges are preferable, in this case, to gentle restringents, such as rhu-barb. These disorders are never to be removed by too speedy measures; it is much better closely to follow their steps, and to seize the moment most proper for stopping their progress. The fear of occasioning spasmodic dispositions, which are always fatal, or a dryness that would be infallibly followed by obstructions, ought to possess the mind of the physician, and suggest a salutary slowness.

What I have just said of the spleen, ought to be extended to the liver, and mesentery, which Baglivi, with so much reason, considers as the peculiar seat of many diseases; the loose and humid constitution of these viscera, render them still more proper for becoming the seat of the stoppages we are mentioning: for besides their being more moist in children, they have not yet acquired all their elasticity. A physician ought then never to lose sight of these two objects; it is necessary to preserve the action of these organs, or to restore it by somewhat active medicines. On this even balance, managed with the greatest circumspection, depend the growth, life and health of children.

Young girls are still more subject than boys to obstructions, and the swelling of the belly, which puffs up nearly in the same manner as the breasts at the approach of the menses. This inflation is sometimes accompanied with a looseness. We cannot here be too earnest in shewing that this state deserves the attention of the skilful physician, not only because a looseness too suddenly stopped may become the source of
a mul-

a multitude of dangerous infirmities; but because the matrix being at this age the organ that is found most in action, it would be very dangerous to oppose its extension, which is the cause of the swelling of the lower belly. Slight stomachics, gentle purges, and bitters are the only remedies proper in such cases. We ought to expect more from nature than from art; and a good regimen is more particularly necessary. We ought to permit only the use of such fruits which by observation are found to be useful. Nothing is so common as to see the extended bellies of children fall and resume their natural state in the season for cherries, grapes, and chesnuts.

In short, among these inflations, there are many too much feared, and others that are not feared enough. They are always of great consequence, when attended with an obstinate looseness, which weakens and extenuates children, throws them into a decay and a slow fever, or into a leanness without a looseness, that tends to a marasmus, to a kind of verminous atrophy, &c. They become weak, without sufficient moisture, pale, and languishing; their skin is rough and blackish; their nails become crooked, their hair falls off, and they become consumptive. I have seen those who have had only skin and bone, and whose aspects were hideous. Children are the more subject to this swelling, on their being neglected, ill nursed, &c. This state, which is always the more dangerous, in proportion as the age of puberty approaches, and which is a consequence of the obstructions of the viscera of the lower belly, ought to be treated in the same manner in in-

infants as in adults. It is almost always mortal when joined with a looseness; especially if the latter continues for a long time, and if the excrements are fetid, thick, and glutinous. We may then suppose, that there is a dissolution even of the viscera, and irregular openings in the blood vessels of the intestines.

Slight purges, milk, lenitives, the fruit we have mentioned, stomachics, change of air, and of the nurse, if the infant sucks, are the only remedies that can be employed in these kind of swellings when accompanied with a marasmus and looseness.

S E C T. VII.

Of the small-pox and measles.

Though most authors have ranged the measles and small-pox among the diseases of infants; it may nevertheless be asserted, that they are here misplaced. It is scarcely less improper to reckon them among the symptoms of infancy, considered, as a disease, than it would be to consider falls, burns, or even death as accidents peculiar to that age, because it is observed, that they are then more exposed to them than at any other time of life. However, though it is evident that the small-pox is not a disease peculiar to infancy, since it performs its ravages in all ages, and is the more dangerous in proportion as the subject attacked is at a greater distance from infancy, yet as it cannot be denied that it most commonly appears in the early time of life, we shall mention, in a few words, the best observations we have met with in the works of physicians, and those

those that are most conformable to our own experience.

We shall therefore observe, first, That it is necessary not to confound the three states of the disease, found in the small-pox; the time of the contagion, the effect of the virus, and of the *stimulus inflammatorius aëri inhærens*, which attaches itself to the mouth, the nostrils, the lungs, and the intestines. Its beginning, almost entirely like the beginning of most acute diseases, can no otherwise be distinguished from them, but by our knowing that this epidemical distemper has lately reigned, or reigns still in the place where the sick person is found, or near it; that he never had it before, and that he is seized in a season proper for its breaking out, as in the summer*. In the spring, the most essential indication that presents itself in this state is, to take away the thorn, as soon as it is felt, or to cure the wound it has already made, by means of bleeding a number of times, that must always be proportioned to the state of the pulse, and the importance of the symptoms; by the assistance of emetics, well known antidotes, cordials, diaphoretics, &c. There is nothing astonishing, says Boerhaave, in our having found a specific against the virus of the small-pox: we ought to seek for it, according to this author, in antimony, and mercury.

Scarce is the first stage of the small-pox terminated, which happens towards the third or

* Morbus variolarum ut plurimum epidemicus, verno tempore primò incipiens, æstate crescens, languens autumno, hyeme sequenti ferè cedens, vere iterum eodem ordine rediturus. *Boerh. aph. de cognos. & curand. morb.* n. 1380.

fourth day, when the disease enters into the second stage. The eruption appears in the face, hands, and arms, in the body, and the inferior extremities : all the symptoms are mitigated, the red spots grow large, rise and become enflamed, the skin, which is more or less covered with pustules, obtains a greater tension ; the perspiration diminishes ; the most dangerous symptoms then shew themselves, the urine becomes bloody, a delirium, spitting of blood, dysentery, angina, and diarrhæa appear with more or less violence ; respiration becomes difficult ; the voice is hoarse, &c.

This state soon leads to the suppuration of the pustules, which begins to be performed on the fifth or sixth day of their appearance, or on the eighth of the disease. There sometimes rises at the same time, that is, towards the end of the inflammatory state we have mentioned, small blisters on the skin, filled with a reddish lymph, that is almost always of a dangerous nature. The violence of the reigning disease, the bad temperament of the patient, too warm a summer, a regimen and remedies of too hot a nature, frequently render that solution dangerous which is attended with a dryness of the skin, an abundant salivation, and a considerable swelling of the feet, hands, and face. I have also sometimes seen at the same time, small, livid, black and gangrenous spots placed between the pustules that begin to suppurate, which are always attended with great danger to the patient. A physician who is unable to prevent the suppuration, ought at least to endeavour to render it as slow and as slight as possible,

sible, and especially to prevent its being completed in the head, throat, breast, &c.

In short, the suppuration of the pustules increases, they become filled with a matter that is at first whitish, at length its colour inclines to yellow; it bursts out, the skin is covered with a purulent humour that runs from it; the parts of the skin uncovered by it are inflamed; the fever is heightened as well from the reflux of the perspiration which is stopped, and the mixture of the purulent matter in the nostrils, eyes, stomach, intestines, &c. with the blood, as from the irritation of the membranes, nerves, &c. This is the third stage of the small-pox, which is often accompanied, or followed, by more violent symptoms, by a phrensy, carbuncles, and inflammations; by its settling in the liver, breast, or reins; by a slow fever, phthisic, marasmus, consumption, &c.

Secondly, That the measles and small-pox, which nearly resemble each other in the nature of the virus by which they are produced, in their eruptions, their contagious quality, the pain of the body and loins, and the itching of the skin; which discover themselves nearly by the same signs, by vomiting, loss of strength, a violent head-ach, a trembling of the feet and hands, &c. that these diseases, I say, differ, however, 1st, In the height of the pustules, which is very considerable in the small-pox, and almost imperceptible in the measles. 2dly, In the inflammation of the eyes, which is very frequent in the one, and very uncommon in the other. 3dly, In their crisis; viz. suppuration in the small-pox, and resolution in the measles. 4thly, In relation to the time they last,

the measles being commonly terminated in nine days ; and the small-pox in twenty-one. 5thly, In relation to the danger, which is commonly less in the measles, than in the small-pox, which almost always leaves cicatrices on the skin that last as long as life itself. 6thly, In the cough, which is more convulsive, and more common in the measles than in the small-pox. And, in fine, In the heaviness of the head, which attends the one, and in the shooting pain which accompanies the other.

Thirdly, That independent of those symptoms of the small-pox, which are common at all ages, such as a pain in the head, with a small fever, the redness and swelling of the skin of the face, the yawning, sneezing, and syncope that appear at the beginning of the disease, the nausea, restlessness, heat, itching of the whole body, more especially of the back, breast, and hypochondria, the heat and dryness of the tongue, the redness of the eyes, hoarseness of the voice, encrease of the fever, &c. Children have besides, at least very frequently, terrors during their sleep, convulsions, a cough, a kind of coma, epileptic fits, dim eyes, which from time to time let fall a few tears.

Fourthly, That the small-pox of children are frequently more complicated than those of adults ; but are however less dangerous ; not only because their skin is more flexible, but also because the great quantity of humours with which it abounds, hinders the progress of that inflammatory disease ; in a word, children are much oftner cured of the measles and small-pox than adults, as they are oftner cured of all other acute diseases.

As to the opinion of the public, that the small-pox and measles do not require the assistance of physicians, we shall observe;

First, That though it cannot be denied, that there is a benign sort of small-pox and measles, that may without imprudence be trusted to the care of nature alone; yet there is no case that does not in some respects require the assistance of a physician; was it only to discover in time the character of the disease, in order to be ready to assist or correct nature, or to wait without interruption the effect of her operations, when they may be depended upon with security.

Secondly, It is evident, that the most experienced physicians meet with great difficulties in the treatment of the malignant small-pox and measles, and consequently that in these difficult cases the idle prescriptions of silly women, or the injudicious nostrums of empirics cannot be sufficient.

Thirdly, That the custom of not calling for the assistance of a physician till the beginning of the eruption, or not till people begin to be seriously frightened at the symptoms that arise, very seldom repairs the fault of having begun the treatment without their advice; for the greatest master strokes, at those dreadful times, can never decide the state of the disease, without exposing to the greatest danger the patient, who is already in a hazardous situation, by his standing in need of this assistance. It is therefore much safer to prevent all formidable accidents, in the most tranquil season, that is at the beginning of a bad sort of the small-pox, than to be obliged to struggle against them,

when they are already very dangerous, or the signs of some fatal obstruction.

Fourthly, That in those kinds of the small-pox and measles that necessarily require the assistance of art, the physician is not to form his prescriptions from the name of the disease, as is too commonly practised, but from the circumstances that arise, and the nature of the symptoms: thus the access of a delirium, or a diarrhæa, &c. require the same treatment in the small-pox, as in any other acute disease; in a word, if bleeding, an emetic, or any other assistance is indicated, the circumstance of its being by a symptom of the small-pox can never make a contra-indication. This great law of Chirac, so well known to our great masters, has been followed with the greatest success in the treatment of the dauphin, when in the small-pox.

Fifthly, We may conclude from the above observations, that there ought to be no general method of treating the small-pox, and that therefore the view of cooling or heating, and even the kind of middle method to which Sydenham at length confined himself, are all equally bad when applied indiscriminately to all the cases that present themselves. That in fine, if we would direct ourselves by a general method, modified and varied according to the importance of the symptoms that attend the small-pox, this distemper being a species of inflammatory diseases, ought to be treated in the same manner with them, in order that it may neither turn to a gangrene, nor a suppuration, and be terminated without pustules. “ Quum
“ in

“ in aliis omnibus succedat, hic nihil repugnet,
 “ morbus variolosus sæpe sine variolis fit*.”

As for the rest, whatever relates to the diet proper in the small-pox, and to certain external assistances, as ointments for the eyes, the several methods of preventing the breaking of the pustules and leaving deformed scars, &c. they are to be found in a multitude of books already published on this subject: books, which have led us to the precise point where our celebrated Riviere†, by deviating but little from the Arabs, has carried this part of the art of medicine. What I have advanced may be found in his works, which were anterior to those that did such honour to the English physicians of the last century.

We shall here add some general rules relating to the prognostics on infants seized with the small-pox.

We seldom see infants die of the small-pox when they have a free respiration, especially at the beginning of the disease, and when the urine is but little altered and the belly loose.

A diarrhæa is not so dangerous in children seized with the small-pox, as a difficulty of breathing. This evacuation sometimes produces salutary effects; it diminishes the quantity of the humours with which children almost always abound, and which increase the violence of the symptoms, when nature or art does not favour the excretion.

The small-pox seldom fails to break out on children who have a fever, convulsive motions,

* See Boerhaave's Aphorisms, n. 1393.

† See his first chapter on the small-pox.

an inclination to vomit, and complain of a pain and great heat in the loins.

The cutaneous diseases of children are frequently cured by the small-pox, when treated according to the rules of art; but if the treatment is not methodical, it more frequently leaves in children, than in adults, dangerous impressions on the viscera of the lower belly and breast, obstinate fluxions in the eyes, scabs, &c.

Baglivi says, that in an epidemical small-pox that raged at Rome in the year 1702, he observed, that almost all the children died who had not a looseness with this distemper.

These are the acute internal diseases most common to children, which I have separately described, in order to give a more just idea of them, and I shall in the prosecution of this work point out their mutual connections and different complications. We have hitherto seen that most of them proceed from the unfolding of the body, and the progress of age. This consideration has determined us to establish a method of cure, that is at once simple and proportioned to the delicacy of the organs of children; in short, the utility of this method, which is conformable to the intentions of nature and the rules of art, have been almost constantly confirmed to us by experience.

We have not expressly treated in this work, of the fevers of children, because they scarcely differ in any thing from those of adults. We shall satisfy ourselves with saying here, in a few words, that we can only form a judgment of a fever, by the quickness of the pulse, which is natural to children; that their pulse is always quick,

quick, irregular, and slightly convulsive; that they are seldom attacked by intermitting fevers; that the termination of other fevers has always appeared to me more irregular at that age, than in adults; and, in fine, that irregularity takes place in all the diseases of infants, where we perceive, besides the foundation of resemblance between them and those of other ages, a particular progress which it is difficult to stop, and which cannot be perfectly described.

C H A P. II.

Of the external diseases of children.

THE effects of the revolutions of infancy are sometimes felt in the external parts, as well as in the viscera. It is principally with those disorders of the skin, that merit the attention of physicians, that we shall fill up this chapter. In the next we shall treat of those external diseases that arise from faults in its conformation.

S E C T. I.

Of the crusta lactea, and scald head.

The hairy part of the heads of children are frequently found, at the moment of their birth, plaistered with a kind of varnish more or less thick, which commonly falls off of itself, or is removed by applying to it some emollients, as the oil of sweet almonds, or fresh butter, which mothers are accustomed to make use of in the case we are mentioning. The hair does not fail to grow through this scab, provided it
be.

be not too thick. Perhaps it may be necessary to its growth; and, may it not be considered, as owing to that disposition of the skin which renders it fit for producing and covering itself with hair? The places of the eye-brows are equally covered with this crass, which seems to confirm this supposition in relation to its use and origin.

It is not therefore astonishing, considering this first disposition of the skin, that it suffers more sensible disorders, that its vessels and glands relax, that the humours thicken, that they stop at the roots of the hair, or, in short, that they form scabs more or less thick, more or less soft, fat, dry or moist.

These scabs are generally called *crusta lactea*, when they are fat and moist, when they often appear and disappear, and when they leave no remarkable impression on the parts that have been affected: But if these scabs are dry, scurfy, white, brittle, meally, and attended with callosities of the skin, and the fall of the hair; if they form blotches of a considerable size, and rise in the manner of a walnut; and, in fine, if they are obstinate, they then take the name *tinea*. These diseases of the skin have been distinguished by different deductions, drawn in a very arbitrary manner from certain characteristic marks that are extremely vague and uncertain.

We shall not stop any longer to establish the diagnostic of this disease, which is evident enough of itself, and on the existence and nature of which, people who are not wholly ignorant of these matters, cannot be mistaken.

We

We think it more necessary to proceed to the treatment of these different disorders.

First, As to the benign sort of the *crusta lactea*, it may be asserted, that, in general, it disperses of itself, and that the physician ought never to propose a treatment that would too directly hasten its suppression. On the contrary, his principal care ought to be to calm the impatience of mothers, which is not very easy to be done; we find many of them who cannot bear to see their children in this state, and imagine, that whatever renders them disagreeable, should be removed as speedily as possible: But we ought not to be weary of trying to convince these mothers of the truth of what has been taught both by ancient and modern physicians, that these scabs are the consequences of a salutary operation, by which nature endeavours to depurate the humours, which consequently ought to be drawn off rather than stopped. This the physician ought always to have in view, and he may accomplish it with success, with lotions of warm water, and the application of beet, or some other soft mucilaginous plant, as the leaves of mallows, marsh-mallows, &c. with cream, fresh butter, or milk. These mild and emollient topics supple the skin, and promote perspiration.

By a multitude of fatal examples we have learnt, that the repercussion of the matter secreted in the *crusta lactea*, is almost always mortal, especially when the precaution is not taken to supply the want of that excretion of the skin by some other evacuation, a regimen more sparing, &c. Desiccatives in powder, or in the form of pomatum, ought therefore to be

carefully rejected. This observation cannot be too carefully attended to, was it only to hinder the impatient mothers or nurses just mentioned, from being so imprudent as to listen to the promises of certain quacks, who set a great value on the pretended secrets by which they make the *crusta lactea* disappear in a short time. Nothing is so easy as this kind of cure. If the regular practitioners of the art do not proceed in the same manner, it is not for want of means, but only because they know the fatal consequences with which it is attended.

We shall observe, at the same time, that those directions of the humours, or oscillations, that constitute the primary cause of the *crusta lactea*, have always a certain connection with the functions of the digestive organs, and with what is produced by a natural or vicious digestion. The physician ought never to lose sight of this essential point: For this reason, gentle stomachics and slight restraining purges given in small doses, only to keep the belly loose, and revive the tone of the stomach, such as rhubarb, white roses, succory, the infusion of the leaves of senna, bitter cathartic salts, &c. are very salutary in the case before us: it is also useful to add to these, gentle restraining purges, sudorifics and mercurials, in order to diminish gradually the quantity of the excrementitious juices which mount up to the head. This method likewise serves to hinder the direction of the humours towards the skin, and the disposition of that organ which determines them thither, from becoming necessary, and being formed into a kind of common sewer, which nature cannot part with, without evident danger.

But

But we should always dry up this source of depuration with the greatest circumspection, and frequently clean the head with warm water; and as the purulent matter secreted under the scabs may become prejudicial by staying there, and may eat into and inflame the skin, it is always of use to take them off carefully. This end is most frequently answered with warm water, which of all topics is that which gives us least room to apprehend that fatal repercussion we have mentioned, and which is, on the contrary, very proper to dispose the skin, in the most favourable manner possible, not to suffer any unnatural excretion to be made this way. In fine, the cure of the benign crusta lactea ought to be confined to washing the parts affected with warm water, and to gentle restraining purges, given either alone, or with mercurials and sudorifics.

Secondly, As to the tinea capitis, or scald head, it is only by the most severe regimen, joined to purgatives, sudorifics, and dissolvents more frequently repeated, and given in stronger doses, that it can be attacked without danger. We say, without danger, in order to recal the general reflection we have just made, on the fatal accidents that may arise from the repercussion, or injudicious removal of all these diseases of the skin. But when we have, by the assistance of the general remedies we have pointed out, and by a prudent delay, disposed nature to form a revolution that must necessarily occasion the suppression of the thick humour and ichor which rises between the scabs of the tinea, we may then make use of external remedies, such as powders, and lotions against the dis-

diseases of the skin found in different Pharmacopeias, as the flower of sulphur made into a pomatum, balsam of sulphur, the mercurial ointment, and many other different topics composed by different mixtures of these. The most sticking plaisters are sometimes also applied with success, and by these, part of the skin itself, with the roots of the hair, are torn up, which makes way for the formation of another skin that is more sound and better organized. But we still repeat the assertion, that these diseases of the skin frequently disperse of themselves, from the changes occasioned by the progress of age; for the skin insensibly acquires a degree of strength and firmness that makes it resist the obstructions of the miliary glands. In short, when these diseases prove so obstinate, as to resist the methodical treatment here laid down, we are to suspect some particular virus, and are to have recourse to the different specifics used in the treatment of those diseases from whence they derive their origin.

S E C T. II.

Of the diseases of the ears, eyes, nose, and other parts of the face.

The eyes, nose, ears, and cheeks have such a connection with the hairy part of the head, that it is not to be wondered at, that when this is covered with scabs, those also feel the effects of this indisposition; but sometimes these diseases of the eyes, ears, &c. are idiopathic, and all these different parts are affected, though the hairy part of the head remains in its natural state.

In

In these two cases, the eyes become red, moist, and full of pain; the nose swells, grows red, and is covered with scabs; the ears discharge a humour more or less thick; the cheeks, and even the neck and throat are covered with eruptions, &c. All these disorders ought to be distinguished, like the *crusta lactea*, by their degree of mildness or malignity, and treated in the same manner. We cannot too often repeat, that we must here expect every thing from time, from the care of keeping in a proper state the parts affected, and from the application of some softening and mollifying topics, without ever placing a dangerous confidence in pretended specifics: for the disorders of the eyes, and other parts of the face, almost always succeed the *crusta lactea*. The connection here mentioned between these two diseases, is founded on constant observation, which proves that the eyes are seldom affected, when the humour lodged in the hairy part of the head is complete and very considerable. An observation that points out a very efficacious method of practice, for removing from the eyes a painful flux, or for preventing its being drawn to them, and carried to a degree of intensity that would render it almost fatal. In this case we ought to draw the humour which falls into the eyes towards the hairy part of the head, by the application of proper suppuratives, if it be covered with scabs, or by that of vesicatories, if it be found. This last remedy applied between the shoulders, or behind the ears, is very useful in producing the same effect.

S E C T. III.

Of the aphthæ or thrush.

I have already treated of the diseases of the gums of children, caused by dentition, and of those disorders of the throat, to which they are very subject. We are here only to treat of the aphthæ, properly so called, that is, of the small, red, whitish, ulcerated pimples in the mouth, which are more or less troublesome and painful, and are known by the name of thrush. Infants are most susceptible of these kind of eruptions, on account of the extreme sensibility of their mouths, and of the weakness of the small glands with which they are furnished. These organs more easily become relaxed in children, and the humours flow more readily within their cavities : whence proceeds the sores and ulcers in the mouth more frequently observed in them than in adults. But a certain acrimony in the aliments taken by infants, and even their milk, which is not always exempt from it, joined to the same quality also sometimes found in the saliva and other mucous humours secreted in the mouth, are the principal causes of the aphthæ we are speaking of.

These small pimples, which are sometimes accompanied with a kind of inflammation that resembles an erysipelas, and which tends to a gangrene, are most commonly without pain, or any considerable inflammation. The syrups of mulberries and violets, honey, the yolk of an egg, sugar, oil, wine, warm water, the decoction of saffron, &c. seldom afford any considerable assistance, but when they are preceded
by

by emetics, purgatives, slight sudorifics, or clysters, and care has been taken to prescribe a regimen of life proper both for the nurse and the infant, and even to change her if it be perceived that her milk has any bad quality.

S E C T. IV.

Of the zona ignea, or shingles, scabs on the navel, and the rest of the body.

The eruptions which frequently appear on the heads of children, sometimes spread over the whole surface of the body. The skin is covered in different places with blotches that require the same attention as the crusta lactea formed on the hairy part of the head, and which ought to be treated in the same manner.

These eruptions also sometimes break out on the navel, where they form a very thick scab, which yields with difficulty to the most approved remedies. It is known, that the skin of the navel is of a very fine and close texture, and that it has acquired, by the ligature of the navel-string, a disposition that greatly favours the eruptions we are speaking of, and also many other disorders which we are going to describe. We ought then never to lose sight of this ligature in the treatment we are going to propose : And, as it is observed, that the umbilical vessels do not always perfectly cicatrize, and that they may occasion the flowing out of blood and urine, we ought to take great care not to apply strong suppuratives to these parts. I have seen two infants, whose navel continually discharged an urinous liquor through the scabs, which concealed a small fistula. From this cir-

cumstance scabs on the navel require great attention on the part of physicians, in relation to the use of local assistances : in short, whenever it happens that we cannot cure them by making use of the necessary precautions, we must endeavour to remove them to some other part where there will be less danger.

There is another kind of crusty scab, whose seat is singularly regular, and which surrounding the waist, like a belt, justly merits the name of *zona ignea* ; for the scabs of this sort form a narrow zone, which most commonly encircles the body, or is within a very little of doing it : this is placed at the height of the umbilical region. The ancients thought this disorder proceeded from the heat of the liver and spleen, and indeed it seems to have some connection with these viscera.

Scabs are most generally occasioned by a disordered digestion, or an insufficient secretion of the different humours, and especially of the bile, which being retained in the blood, most commonly become the principal cause of all the diseases of the skin. For this reason, purgatives, stomachics, bitter and soapy aperitives, and even soap pills, are the best internal remedies we can have recourse to in this case.

As to the use of topics, they have the same inconveniences as those we have already mentioned, when treating of the *crusta lactea*. The repercussion of the disorder we are now particularly speaking of, tends more immediately to the breast ; this has been observed by many authors, and I have had it confirmed by my own observation. The following topics, properly applied, are commonly free from the
8 danger

danger that might be apprehended from those that are more active; and the mercurial ointment, nutritum, the ointments of the root of patience, sulphur, lotions of warm wine, differently combined according to art, and accompanied, or even preceded by the use of internal remedies, ought to be considered as the most proper external assistances.

In fine, when an inflammation is spread over the part, we ought to have recourse to bleeding, provided the infant be not of too tender an age. In this case, when there is an inflammatory eruption of the skin, we ought to prefer the application of lenient topics, such as fresh butter, balsam of Arcæus, tallow, fomentations of warm water, or prepared with emollient decoctions, and bathing in mineral waters proper for the disorder in question.

SECT. II.

Of ruptures.

The ruptures of children are not always so dangerous, nor so difficult to be cured as those of adults. I do not speak here of a simple infirmity that requires no operation. The most general rule that can be given is that of retaining them by a bandage. They are almost always owing to particular relaxations of the skin, and the tendinous fibres of the navel and the rings of the abdomen. The straining which children incessantly practise when crying, when seized with convulsions, &c. force the viscera of the lower belly with violence against the navel, and rings of the belly, which not having yet acquired a sufficient degree of resistance, are

constrained to give way and open a passage for the peritonæum, the omentum, and the intestines. But the displacing of all these parts, as we have already observed, is seldom followed in infants by a contraction, that makes it necessary for the surgeon to use any other operation besides that of reducing them. When this contraction takes place, this case then enters into the general class of hernias, in which the physician is obliged to call for the assistance of the surgeon. But when the rupture enters and falls down with ease, when it is attended neither with tension nor pain, we ought to be satisfied with its reduction, and keeping it up with bandages, and always taking care to chuse those that are the lightest and most supple. It is proper to observe, that all the parts that have been displaced, in time resume their natural situation; and that the tendinous fibres, the navel, and the rings, obtain strength in proportion as the infant increases in growth.

We cannot be charged with too often repeating the advice found in all good authors, in observing the necessity there is that people should stand on their guard against the enterprizes of certain quacks, who abuse the confidence of credulous parents, by making their children submit to operations as cruel as they are useless. These itinerants ought to be the more suspected, as they always take great care to keep physicians at a distance, who would see into their conduct, and soon discover their ignorance and rashness. We cannot without horror think of the ravages which these people produce in France amongst the common people. Not satisfying themselves with perform-

ing

Medicinal Education of CHILDREN. 263
ing unnecessary and always painful operations, they have even the cruelty to take away the yet useless testicles. I have seen many children in different places, especially in the country, thus mutilated, by men who are so cruel only because they have no knowledge of the use of the parts, and of the rules of art. It is astonishing, that in a nation so enlightened, abuses should be suffered to subsist, that are so contrary to the rules of surgery, and so pernicious to society.

SECT. VI.

Of the hæmorrhoides, and rupture of the
fundament.

The contraction of the viscera of the lower belly, and their blood-vessels, is sometimes so great in children, that they become choaked up, as in adults, and burst, near the rectum, where they form a kind of hæmorrhoides that is frequently taken for a dysentery. These hæmorrhoides are commonly owing to the obstruction and bursting of the venal canals of these parts, in which an inflammation is but little to be feared, especially in children, whose temperament is soft and moist; and therefore this evacuation of blood is commonly favourable. It is very uncommon to see children seized with hæmorrhoides so perfectly characterized as those mentioned by Hoffman*.

M. Andry pretends†, that the hæmorrhoides, especially in an age that is extremely tender,

* De morbis infantum, cap. XI.

† Orthoped. p. 75.

may hurt the growth. Young people, says this author, who are subject to this indisposition, are obliged to lean towards one side, and this forced attitude is sufficient to disorder the articulations of the vertebræ. But the hæmorrhoides are very uncommon in infancy, and they usually last too short a time to make such an impression. They generally yield to diet, repose, fomentations of warm water, or of wine and oil, and to the application of the ointments used in the like cases, as that of populeum, althæa, &c.

The falling down of the fundament, which has some relation to the hæmorrhoides we have been mentioning, and which springs from the same cause, that is, the relaxation of the extremity of the rectum, is a disorder more common to children than adults. Some of them are subject to it all the time of their early infancy, while others are not troubled with it till they are five or six years of age. It is seldom dangerous. Nothing here but time can make a perfect cure.

Before we describe the method proper to be used in raising up the fundament, and the better to comprehend the manner in which mothers so readily perform this operation, let us examine in what its falling down consists. When it is said, that the fundament falls down, this manner of expression seems to mean, that the extremity of the rectum is loosened, or at least, that the parts to which it is fixed, are relaxed, and suffer it to be more or less displaced. But this is far from being the case; for the edge of the rectum which forms the anus is too firmly fixed and secured, as well by means of the external

ternal sphincters which are immediately fastened to the sphincter properly so called, as by means of the muscles called the levatores ani. These last muscles cannot stretch themselves out in length so far as this kind of lengthening the rectum would require, which is sometimes half a foot.

How then is this produced? I answer, that though the edge of the anus be fast, the superior part of the rectum which is free, is become relaxed, and falls, turning the inside outwards, and proceeds more or less beyond the anus. It is nearly the same with respect to the falling down of the fundament, as with the falling down of the matrix, which being suspended by ligaments, cannot fall; but the vagina being sometimes considerably relaxed, falls, and hangs out of its cavity; but yet it is always retained by the membranes that are found fixed to its fore part.

Now, though it is evident, that the extremity of the rectum is relaxed in the fall of the fundament, it is natural to suspect, that the cause of the disease lies higher, and that there is some particular disorder in the beginning of the rectum, and even in the colon. In reality, I have frequently observed, that the children subject to the falling down of the fundament have very severe pains in the small arch of the colon, and even throughout its whole extent. I have very often observed the same symptoms in adults troubled with this infirmity.

It is necessary not to give into the mistake of certain persons, who imagine, that the part of the intestine which falls, and which is of a deep red, and sometimes blackish or brown,
is

is inflamed, choaked up, and threatened with a gangrene. These colours are natural to the interior membrane of the bowels: we must not then, in this case, apply any powerful topics to prevent the mortification of the intestine.

The most common manual operation, by which the rectum is made to enter the anus, consists in gently pressing it with the infant's buttocks, as with two small bolsters. This is an operation every day performed by mothers and nurses with success. We should also prescribe at the same time fomentations of wine and roses, with warm water and a little brandy, the decoction of plantain or wormwood, and in a word, of all the medicines proper for insensibly re-establishing the tone of the parts affected, without producing any irritation. M. Rouelle has assured me, that he has seen many children cured of this disorder by only taking care to make them stand upright when they voided their excrements. This is occasioned by the advantageous position of the intestines procured by this attitude.

If the intestine hangs out a considerable length, you should then gently apply the finger rubbed with oil or fresh butter to the end of the prolongation of the rectum, and by little and little enclose it in its own cavity, in a proper direction, at length drawing out the finger with precaution, and repeating the same operation, if doing it once is not sufficient for the reduction of the whole. We may also make use of a soft suppository soaked in oil or butter, &c. The different bandages that have been proposed for this disorder are almost always more inconvenient than useful. It must be
left

left to a good regimen, to nature and age, to give the intestines and the parts to which they belong, the necessary strength and solidity.

M. Andry believes, that wooden chairs with the seats made flat and even would preserve children from the falling down of the fundament: but for my part, I do not see how these chairs can produce this effect, since, as we have already observed, the seat of the disease is not in the orifice of the fundament, and if it was, the most certain means of confining this orifice would be constantly to press the two buttocks, with some degree of force, the one against the other, and to confine them for some time in that position. Now the fat and skin which cover the tuberosities of the ischium, and support the weight of the body when sitting, are less easily carried towards the orifice of the fundament, when they are closely compress'd by a smooth and hard body like an even piece of wood. Besides, a seat that is stuff'd and very soft easily enters between the two buttocks and forms a kind of bolster to support the rectum. Those who are subject to external hæmorrhoides, and have the border of the anus surrounded with painful tubercles, plainly experience the good effect of this kind of resistance, since they cannot commodiously sit on any other wooden seats but those in which there are formed two oval hollows.

SECT. VII.

Of chops, chilblains, and burns.

The skin of children is so tender and delicate, especially at the extremity of the fingers,
the

the lips and nose, where there are few vessels that contain fat, and many bunches of nerves, that it is not at all surprizing that we find them most sensible to the impression of the air, and especially to cold winds. The rents or openings formed in the extremities we have mentioned, and which are commonly called chops, are small cracks more or less painful, edged with slight callosities that are pretty difficult to remove.

To preserve children from these troublesome and disagreeable chops, we should take care not to let them pass too suddenly from a hot into a cold place; and in general not to expose them too abruptly to cold winds, and especially to that of the north. But when children already suffer this indisposition, we must have recourse to lotions of warm wine, and lenitives, as pomatum, Galen's cerat balsam or oil of wax, oil of sweet almonds, sperma ceti, tallow, &c. all these topics insensibly remove the callosities of these parts, and render them less subject to a return of these disorders.

Chilblains being also an effect of the impressions of the air, it is not surprizing that the extremities of the tender bodies of children should be more subject to them than those of adults, especially when these parts are made to experience with rapidity the alternatives of cold and heat. The heat having rarefied the humours, and extended the solids; the cold which succeeds and acts on these parts, suddenly closes, and in a manner freezes them: the extremities of a child then experience what happens to the slight stalks of plants, which having been frozen by the cold of the night, and scorched by
the

the heat of the next day, can scarcely support the changes produced in their organization, and the constitution of their sap. The same disorders are produced in children from the same cause, the stoppage of the humours coagulated by the cold, and the sudden rarefaction of these humours produced by the heat, destroy the vessels in which they are contained, render those very humours unnatural, and in a word, produce the spots in the skin, blisters, and supurations, that characterize the chilblains.

Allum water, urine, the decoction of pellitory of the wall, of whole chesnuts, rapeseed, &c. pass for specifics against the chilblains; they are in great esteem amongst the common people; and I have seen very good effects produced by them in chilblains that have eat to the bone. Persons troubled with this indisposition, especially when remedies do not act with all the efficacy that might be expected, ought to take care to keep their bed for some days. The custom of washing the extremities subject to chilblains with snow, cold water, or urine, passes for an excellent preservative: but the application of warm wine is the best remedy I can advise for this last disorder, and I am the more attached to this topic, as its use is free from the dangers that may be apprehended from pretended specifics, that are known to every body, especially allum, and other too active astringents.

I have seen many persons who have dared to maintain, that chilblains were occasioned by a kind of worm, and who hoped to kill it by suffumigations made with cinnabar.

As

As to burns, they differ but little from chilblains. The juice of onions, nutritum, Galen's cerat, and the ointments used in curing them, are never so efficacious, as spirits of wine, or warm wine. This last especially has an admirable effect in drying the parts affected, and commonly promotes a good suppuration and a speedy cure.

CHAP. III.

Of the organical diseases of children.

SECT. I.

Of the diseases of the head.

THE head of the foetus is only a kind of membranous bladder, from which the different parts that are to form the bones of the cranium proceed. These parts harden by little and little, ossify, and at length form distinct parts which reunite, and enter one into another, by a mechanism which it would be here useless to explain.

The brain is, if I may so express myself, the mould on which the bony box that is to inclose it, is formed. This box is more or less extended according to the size and degree of strength and growth of the brain; which depend on some peculiar constitution of the mother and infant, which to us is unknown.

We do not know upon what foundation M. Andry has advanced, “ that the women
 “ who, during their pregnancy, drink much
 “ wine and live on aliments of too hot a na-
 “ ture, render the blood of their infants too
 “ active,

“ active, which may cause their heads to be
 “ too large ; and that those who drink only
 “ water, and feed on aliments too cold, render
 “ the blood of their infants more slow, which
 “ may occasion their heads being small ; so
 “ that we may say, that in some sense great
 “ bellied women have the power of forming
 “ the heads of their children.”

What follows is a much more certain fact ; the bones in the head of an infant do not acquire, in the womb of the mother, the solidity they are afterwards to obtain ; they are soft and separated by intervals, which are of use in their passage through the orifice of the matrix. In a word, the softness of the bones of the head, on the upper part at the fontanella, and behind at the junction of the os occipitis and the ossa parietaria, favour its diminution and passage in the time of delivery.

Sometimes the head takes a bad conformation in its passage, which would last during the infant's life, if care was not taken to remedy it at the moment of his birth. This is a precaution which the midwives seldom fail to take, by gently moulding the head of the new-born infant : an operation that is not of so little consequence as is commonly imagined. It were perhaps to be wished that a judicious physician would employ himself, in searching for the best form we should endeavour to give the head, and that he would give some good rules on this subject.

We may however assert, by taking for the natural formation that of the greatest number, that the head ought not to be round, but a little flattened towards the sides, rounded a-
 top

top before and behind, forming à kind of irregular oval, whose greatest extremity answers to the posterior parts, and the smallest to the front.

We may consider as unnaturally formed, all the heads that are of a different figure from that just described : those that resemble a sugar loaf ; the great heads mentioned by Hippocrates*, under the denomination of macrocephali ; those that are flattened either by nature, or artificially by the caprice of certain nations, who prefer that form to all others ; in short, heads too round are regarded by some as a sign of stupidity.

It is to be presumed, that there is a natural connection between the size of the head, and that of all the other parts of the body ; but this connection being yet unknown, it is difficult to determine what heads ought to pass for absolutely large, and what for absolutely small : it is scarcely more difficult to form a judgment of the intellectual capacity from the greatness or smallness of this part of the body. M. Andry has advanced†, in conformity to the vulgar opinion, “ that the smallness of the
“ head proceeding from a small effort of the
“ blood, it happens that most little heads are
“ incapable of much application, and can only
“ form weak and trifling thoughts, on which
“ account we give to these heads the name of
“ *Linnet heads.*” But how does this proverb agree with that of *great head, little wit*, which

* Lib. de aëre, aquis & locis.

† Orthoped. tom. II. p. 9.

he also cites as being confirmed by many examples.

If the head happens to grow more on one side than the other, or the bones to remove and separate, we should then confine them by bandages applied according to the rules of art; but as these separations and juttings out of the bones most commonly depend on revolutions pass'd in the brain, and on the different collections of humours that may have been formed there, it is the physician's business to judge whether internal remedies are not more necessary than the application of confining bandages, which, by cramping the brain, may be attended with death. In general, all these dispositions to a hydrocephalus, and much more a perfect hydrocephalus, ought to be regarded as incurable diseases.

It is not the same with respect to the manner in which the head bends, or throws itself more on one side than on the other, before or behind. These irregular situations of the head depend on the articulation of the vertebræ of the neck. We all know that the head is supported on the superior extremity of the neck; that it ought to be placed exactly in the middle, and to make a slight angle with the neck, which advances a little backward towards the superior parts*.

These

* M. Andry says, " that the superior part of the spine which forms the neck, bends and inclines forwards, which puts the head in the most convenient situation; for if the spine in this place had been perfectly strait, the head would have been carried too far backward, at least if the spine, instead of joining as it does to the middle of the under part of the head, had been joined

These different inclinations of the head are remedied by many well known bandages; some of which are made of ribbons fastened first to the forehead, and then proceeding toward the hind part of the head, pass under the arm-pits, and are made fast at the breast. There are also collars or supporters for the chin made of thin iron, which by a circular branch go round the neck, and are supported on the stays by the other extremity. This obliges the children subject to the fault we are treating of to hold their heads back in a proper position.

If the bad position of the head proceeds from a fault in the formation of the neck, and the convulsive contraction of some of its muscles, we ought not to flatter ourselves with remedying it, without the long use of bandages and the application of emollient ointments to the muscles affected.

We shall not enter into a longer detail on the organical diseases of the head: But shall content ourselves with this important observation, that we should make as much haste as possible in providing against these disorders; for when the muscles have once taken their bent, and the bones are arrived at a certain growth and consistence, it is impossible to remedy the

“to the posterior part, which would have occasioned a deformity.” *Orthop. tom. I. p. 60.* But, in spite of the anatomical fact mentioned by M. Andry, and his reasoning upon it, it is certain, 1st, That the superior part of the spine bends a little backwards especially towards the first vertebræ; and 2dly, That the spine is not joined to the middle of the under part of the head, but exactly to the posterior part, and that this does not occasion any deformity.

deformity

deformity they occasion, which commonly subsists all the remaining part of life.

S E C T. II.

Of the diseases of the eyes and eye-lids.

The eye-lids are those external parts of the eyes that are most subject to an irregular and bad conformation. In their natural state they should exactly join to each other so as to conceal the eye-ball: but they are sometimes separated by one or both of them being inverted. This separation is also sometimes occasioned by the mere relaxation of the eye-lid, which becomes pendant. This M. Andry has represented by an image as low as it is just. “When the lower eye-brow relaxes or hangs down, it resembles, says he, the boot of an old fashioned coach when let down.”

If the hanging down of the eye-lids is joined to other diseases of the eyes, to an inflammation, and any of the different humours formed on the tarsus, it ought to be then treated according to the general rules, and the same application with regard to infants as to adults. But, if this deformity proceeds from a bad habit contracted in infancy, or from a relaxation or weakness of the muscles designed to move the eye-lids, the application of bandages and compresses dipped in emollient or restringent liquors, are very proper, and sometimes produce good effects.

The ball of the eye has also its particular diseases: but the bad disposition which makes them squint, is the only one that belongs to our subject. The swelling of the eye, its

roundness or flatness, a myopia, and dimness of sight, are disorders that belong to every age, and are almost always incurable.

As to the cure of squinting, which is only practicable amongst children, and where these organs have not acquired a fixed and settled bent, we shall observe, in a few words, that children squint only because their eyes are directed to one or other of their corners, a fault that commonly depends on the relaxation, or convulsion of some of the muscles of the eye : we should therefore endeavour to re-establish them in their natural state. This may be performed by topics adapted to the state of the convulsion, or relaxation of the muscles affected, at the same time taking care to place the objects of vision in a right plane, perfectly parallel to the line which proceeds from one eye to the other, known by the name of the optical axis, or point of vision.

Spectacles, in the form of large hollow buttons, made of an opaque matter, in the middle of which there is a small hole, through which the child naturally seeks the light, and the view of objects are frequently of great use ; but care must be taken to apply them to each eye, and to let the child wear them for a continuance, or to put them on from time to time.

S E C T. III.

Of the hare lip, and other deformities of the face.

The hare lip is, of all the deformities of the lips, the only one that deserves any attention. We shall observe, on the subject of this vicious
con

conformation, that we ought not to resolve on performing the operation necessary to its cure, till the infant has acquired some degree of strength ; at least, if this defect does not hinder his sucking, which it very seldom does. I have even seen a person grown to years of maturity with a hare lip, accompanied with two clefts in the palate, caused by the want of the palatine apophyses of the maxillary bones ; and this inconvenience, with which he was born, had not hindered his sucking his nurse's milk : therefore the assertion in the Memoirs of the royal academy of sciences, that the want of the palatine apophyses of the maxillary bones always prevents deglutition, is not generally true. It must be confessed, that the person I have mentioned, who had no uvula, returned by the nostrils half of the liquids he took ; but he swallowed a good part of them, especially when he stopped his nose. I have made the same observation in relation to an infant at the breast.

I have elsewhere observed *, that the compression of biggins fixes the ears more or less close to the head. People in Europe would have the ears small, flat, and sticking to the head ; the Chinese, on the contrary, like them better when large, hanging, at a distance from the head, and a little moveable. Now, this taste appears to me more agreeable to the intention of nature ; for the ears that have suffered no compression commonly stand at a distance from the head ; and, I have observed, that those that have not been confined by biggins in the time of infancy, are large, move-

* Book I. Chap. iii.

able, something erect, and advancing towards the cheeks; and that the persons who have them in this form, have a keener and a more delicate sense of hearing. In Europe we proceed, with respect to the ears of infants, nearly in the same manner as the Chinese, with respect to the feet of their women: They render them remarkably small, while they let the ears grow; and we lessen the ears while we leave the feet a greater degree of liberty. These varieties prove that error is of the growth of every country and every age, and that caprice has a greater share in the customs established among different nations, even in the medicinal education of children, which is an affair of very great consequence, than the study of nature, and the real advantage of mankind.

We shall observe on this subject, that most people who pretend to bore the ears, especially in Provence, do it with so little judgment, in relation to our taste, that they could not do better if their design was to render them long and pendant, like certain nations who load them with a weight capable of stretching them: in reality, they pierce the middle of that inferior and merely fleshy part, called the lobe. The ears, on the contrary, should accompany the cheeks, and consequently should be bored in that part of the skin which joins the lobe to the cheek.

All that we can say on the subject of the deformities of the other parts of the face, on which M. Andry has expatiated in his *Orthopedia*, is reduced to the varieties, either natural, or procured by art, according to the taste of different nations. But these varieties
cannot

cannot be considered as defects, since we are ignorant in what the absolute perfection and beauty of the face and its parts consist. What passes for beautiful in one nation, is considered as monstrous in another. The one finds perfect and admirable, what the other thinks defective and disagreeable. However, it would not perhaps be impossible to give an immutable idea of absolute beauty in the face and body, by determining the natural offices of each part, and the order and relation that ought to be observed between them. Absolute beauty may perhaps differ in nothing from perfect health. But these enquiries, which might in reality be useful, do not directly belong to our subject.

S E C T. IV.

Of the diseases of the trunk.

The interior parts of the breast, which are composed of the sternum and its cartilages, ought to be a little hollowed, and rounded towards the sides, and to advance equally towards the two ranges of ribs. These parts of the sternum sometimes separate and stand either outward or inward. The cartilages of the ribs, and the ribs themselves, especially in the point of contact or reunion with the sternum, also carry themselves into the different regions of the breast, without or within, and more on one side than on the other.

All the deformities known by the general name of crookedness, may be the effect of the compressions of the matrix on the foetus, of the delivery, of swathing, of internal disorders, of whalebone stays, of falls; and, in a

word, of all the causes that may prevent the equal distribution of the humours, and destroy the equilibrium so necessary to nutrition and the growth of the solids.

These deformities are remedied by gradual compressions, directed according to the nature of particular cases, which are more especially employed early, before the parts affected have acquired too great a solidity. But; in relation to these, no general method can be pointed out that would be proper for all the cases that may happen.

A physician ought never to lose sight of the viscera of the breast, which may occasion the disorders in those bones and cartilages that contain and confine them in their cavities. By endeavouring to destroy an eminence, or a sinking in, that appears without, and is principally occasioned by the depression of the lungs, it is to be feared that the difficulty of respiration, &c. will be increased, as I have seen practised by men who being wholly employed in remedying an external deformity, and paying no attention to the internal parts, have caused, by their compressions and the application of different bandages, the most fatal obstructions. Is it not more prudent to let those deformities subsist, which do not endanger life, than to endeavour to remove them by such dangerous methods?

The inferior part of the sternum, which is the xiphoide cartilage of anatomists, is subject to be carried into the interior part of the lower belly, and its being displaced commonly confines the liver and diaphragm, compresses the colon and stomach, and sometimes causes vomiting,

vomiting, the hiccup, and violent pains in the whole epigastric region. The most ordinary causes of its being displaced are falls, blows received on that part, and the convulsive motions of the diaphragm. I have seen this produced by an immoderate fit of laughter.

This accident is remedied by the application of sticking plaisters, which adhering close to the skin, may serve to raise the cartilage over which it is applied. This inconvenience is not commonly attended with any bad effects, provided that recourse be had early to the assistances made use of in the like cases. It ought, however, to be observed, that this cartilage is sometimes displaced imperceptibly, and that then this disorder does not shew itself in the beginning by evident symptoms, but insensibly taking a false bent, hardens in this vicious direction, and then produces incurable disorders, or such as we commonly hope to cure by the constant application for a long time together of the sticking plaisters just mentioned.

The part of the spine which answers to the breast is a little concave before, in order to leave room for the viscera of the breast; and all the vertebræ are shaped and disposed for this bending. This is the natural state; but the irregular arrangement of these parts is followed by many species of deformity. The vertebræ are pushed out of their places, as well by the weight and motion of the body, as by the force and labour of their own growth, and being thus more or less displaced, form a kind of crookedness that can only be remedied by the use of stays, and by diminishing the stress laid on the vertebræ. With this view we ought to leave

leave these infants, as much as possible, lying on their back or sides. The vertebræ are always most at liberty in bed ; of this, the extent acquired by their cartilages in one night, is an evident proof.

The vertebræ of the loins, which bend inwards, sometimes advance a little too far, and greatly increase the size of the belly. This effect is as much the consequence of the little resistance of the vertebræ, as the weight of the head, and the other superior parts of the body : people commonly imagine, that this deformity is to be removed by fixing a weight upon the belly, or by compressing it ; but by this method they actually increase the evil, instead of diminishing it ; for the more the belly is loaded, the farther backward the head is carried ; as M. Andry has shewn from the example of the hawkers and hucksters, who carrying baskets, or other heavy burthens, supported against their bellies, are by this means necessarily obliged to throw the upper part of the spine backwards, and to increase the bending of the loins, in order to obtain a counterpoise ; the weight of which rests on the centre of gravity, which is found between the two feet.

The best method that can be taken to remedy the bending of the spine we are now treating of, is to load the fore part of the breast, and carry the head forward, in order that the bending of the loins may project less towards the belly.

The coccyx, or inferior part of the spine, which is bent inwards, and supports the rectum, is as liable as the inferior part of the sternum, to luxations that deserve some attention.

The

The coccyx is sometimes carried towards the internal part, in consequence of a strain, a fall, a blow, &c. but this may be remedied by the surgeon's introducing his finger into the fundament, and by this means forcing the coccyx outwards, and keeping it in this position, by making the patient lie in bed for some days, and using the plaisters we have mentioned for the xiphoide cartilage, when displaced.

We shall here take no notice of the imperforation of girls, of the want of an opening to the anus, and of the defects of the prepuce; for, besides these disorderly conformations being very uncommon and evident, the operations made use of in these cases are known to every body. Nothing more is required but to put the parts affected in a condition to discharge the offices for which they were designed.

The hip-bones properly belong to the inferior extremities, as the shoulder-bones do to the superior. I, however, place here the disorders of the hip-bones, because they, together with the spine, concur in the formation of the stature.

We ought to consider the hips and loins, in relation to the ossa innominata, as we have already done the neck, in relation to the head; as the head inclines backward or forward, and in every other direction, so the hips are more or less elevated, or carried to either side.

When their irregularity and bad conformation depend on convulsive twitches and the weakness of the muscles, a cure, or at least some relief, may be expected from restraining, emollient and resolute remedies, from being pumped with warm mineral waters, hot baths, &c.

By

By these assistances, early employed, and repeated from time to time, the loins are sometimes strengthened, and the disorders in the shape corrected. But when the fault we are speaking of proceeds from the unequal growth of the ossa innominata, in their articulations near the pubis, and with the os sacrum, an advantageous change cannot be produced without the long use of internal remedies, such as sudorifics and dissolvents, without however neglecting the assistance of topics, baths, and the advantage of being pumped with mineral waters.

S E C T. V.

Of the diseases of the superior extremities.

The claviculæ, which rest upon the sternum, and support the shoulder-blade, sometimes extend beyond these bounds, soften, and do not grow in proportion to the rest of the shoulder. The articulation of the humerus with the scapula, is then brought forwards, and the shoulder-blade leaving the side, rises more or less outward and forms a kind of hump.

To remedy this vicious conformation, we should principally endeavour to confine the shoulder backward, and to give the clavicle time to strengthen itself, the bandage known by the name of number eight, is very proper for this purpose. People also sometimes use with success an iron cross, one of the branches of which is much longer than either of the other. They fasten the longest branch to the spine, and the shortest to the middle of the shoulder-blades: they at length fasten the neck behind,

behind, by means of a ribbon or iron collar, to the superior extremity of the long branch of the cross: they in the same manner apply two other rings to the shoulders, which passing under the arm-pits, are fixed to the extremities of the tranverse branch of the cross. By this means the shoulders are carried and held backwards, as is also the head; the shoulder-blades are pressed close to the sides, and the clavicles have time to strengthen themselves in their natural position. This cross produces very good effects in the case before us, especially when care is taken to have it worn habitually, and for a long time together. If only one of the shoulders be misplaced, it is only necessary to compress it a little more than that which is in its natural state.

But when their inequality proceeds from the too slow, or too considerable growth of one of them, while the other remains in its natural state, or has the contrary fault, the being pumped with hot mineral waters, more or less active, according to the degree of the patient's strength and constitution, is the only means on which any hope can be founded.

Bad conformations of the arms above the elbows are uncommon; but these are remedied by fastening the arms in a kind of paste-board case, artfully applied, and retained by bandages, &c.

The standing out and irregularity of the bones in that part of the arm between the elbow and the wrist, are more frequent, either on account of the ligaments which join them to each other, or of the great number of tendons by which they are covered.

Most of the vicious conformations of the hands are incurable. Art cannot arrive at making a fine hand, and in this respect correcting nature ; therefore, when the fingers grow unequally, or bend in an irregular manner, in vain will be all our endeavours to restore them to their natural state.

Supernumerary fingers are not absolutely uncommon ; we particularly see a number of people whose thumbs and little fingers are double. There is here no other choice but to remove them by amputation in the usual manner. This operation, which remedies a bad conformation of the fingers that is always disagreeable, and frequently very troublesome, ought to be practised early ; for, when we are arrived at a certain age, we find it more difficult to submit to it, and it is then both more dangerous and more painful than in the time of infancy.

S E C T. VI.

Of the diseases of the inferior extremities.

The articulation of the thigh-bone with the ossa innominata, is performed by so complicated a mechanism, that it is not surprizing that the natural disposition of these parts is liable to be disturbed by many accidents. This danger is greater in infancy than in any other time of life, from the softness of the bones of children, and the violent and irregular motions to which this articulation is exposed in their leaping, running, &c. These efforts frequently occasion luxations in these parts, strain the ligaments, and even fracture the bones, or separate their epiphyses ; thence arise many disorders in the conformation of the inferior extremities, which

enter into the class of the diseases of the bones and articulations *.

I have seen a young man who had his right inferior extremity shorter than the left : he halted considerably, but with this singularity, that whenever he had a mind to compress his shortest thigh towards the trochanter, it became placed in an advantageous position that rendered it as long as the other ; he then walked without limping ; he was obliged however to rest soon after, and resume his former attitude, finding this doubtless too constrained and inconvenient.

In this singular case, might not the head of the femur have preserved two cavities ? or, was it only supported by the extremity of the muscles adjoining to the cotyloide cavity, when the shortest thigh became equal to the other, and he walked without limping ? However this be, this young man, who was thus crippled from his most tender infancy, has frequently assured me, with the greatest earnestness, that till he was twenty-five years of age he imagined, that all mankind were as lame as he ; and it was with great difficulty he was persuaded to believe that his bones were placed differently from those of the other persons with whom he conversed. These accidents frequently proceed from the heedlessness and negligence of nurses and rockers ; but nevertheless they are sometimes owing to other causes, which it is essentially necessary for us not to be ignorant of.

M. Andry has very judiciously observed, that children are obliged to hasten their steps when

* See L'Orthopédie de M. Andry.

they follow the grown people who conduct them. These persons therefore cannot be too attentive to the disasters that may be occasioned by this violence done to the articulations of the thighs and knees of children. The slow step of those who accompany them cannot be kept up with, but by a kind of race run by the children who follow them. The redoubled efforts which these last are obliged to make, when they have not the prudence to attend to their slowness, frequently exposes them to luxations, and very dangerous anchyloses.

The articulations of the knees of children are as easily disordered as those of the thigh. The leg bends inward or outward, and the knees separate, approach, or cross each other, in a greater or less degree. All these disorders are remedied by the application of bandages, and even by the assistance of internal remedies, when they proceed from an inward disorder, which properly constitutes the rickets, of which we shall treat in the following chapter.

In short, the legs and feet of children turn inward or outward according as they have been more or less drawn at the time of delivery. The bad positions to which these parts are exposed all the time of swathing, are however the most common causes of their deformities. The only methods that can be taken to remedy these disorders, when they may be considered as being derived from the birth, are different bandages and splints; the form of the shoes, &c. which ought to be varied so as to suit every particular case; making children walk in a regular manner; the lessons of a dancing-master, &c.

In general, we ought to take great care of the shape and walk of children, not only to give them personal graces, but even to render them as strong and active as possible; this is a more real advantage, though the first ought not to be neglected. We may even advance, that the sound disposition of the external parts, and a certain ease in their motions, have a great influence on the action of those that are internal, and on the natural order of their functions: for it is in the perfection of the motions of all the parts of the body, and their mutual relations, that the health and strength depend. The exercises which are at present too much neglected, such as dancing, hunting, and wrestling, are of greater advantage to the health than is usually imagined, as we have particularly shewn in the chapter on the plays of children. I shall conclude this with some remarks on a maxim of la Bruyere, which has raised a literary dispute between M. Andry, and a famous enemy to physic.

La Bruyere has said, “ that a blockhead
 “ neither enters, nor goes out; nor sits, nor
 “ rises, nor stands on his legs like a man of
 “ wit.” On which M. Andry remarks, that this rule is frequently false, and adds, that in general he conforms to the manners of the times, and is obliged to shew a regard to them, if he would have it seen that he is well born; because a blockhead, and a blockhead who deserves so much the more to be regarded as such, as he has cultivated no other part of himself but his body, will often appear with a better grace, and will stand better on his feet than a

man of wit, who has, with all imaginable success, made his principal study the cultivation of his mind. M. Andry endeavours to prove the truth of what he advances by the example of Voiture, who had a very silly look ; by that of Fontaine, Despreaux, and Bruyere himself, who was perhaps the man in the world least capable of standing on his legs with a grace. Whence he concludes, that there is no certainty in La Bruyere's maxim.

The abbé D. F. maintained, that La Bruyere did not pretend to say, that a man of wit made a better appearance than a blockhead ; but only that a blockhead, provided he had all exterior advantages, had never so good a grace as a man of wit endued with the same advantages, and that a blockhead in all he did constantly shewed himself a blockhead.

It seems to me, notwithstanding the two explications just repeated, that La Bruyere's maxim is true, and that both M. Andry and the abbé D. F. have not taken it in its proper and natural sense.

La Bruyere does not determine what is the most perfect manner of entering, going out, sitting, rising, and standing ; but only says, that a blockhead neither enters, nor goes out, &c. like a man of wit. M. Andry and the abbé D. F. carry La Bruyere's remark too far, and both insinuate, that in order to a person's appearing in company with a good grace, and an agreeable manner, he must enter, bow, and stand like a dancing-master. This was never La Bruyere's idea ; for a person may attain all these attitudes by rule, and still appear a blockhead. Ignorance and stupidity will pierce thro' the
the

the most studied motions, and wit will shew itself notwithstanding the most negligent bodily attitudes, and even in spite of the most clumsy air. Thus, though he neither rises nor sits like a dancing-master, he nevertheless sits like a man of wit; while a fool enters and salutes like a blockhead, though he enters and salutes according to the rules of art. A man of wit may be known by his countenance, his gestures, his behaviour, and his conversation upon the most simple subjects; and he reaps an advantage from the very faults he commits against the rules of dancing. I am persuaded that Voiture, la Fontaine, Despreaux, and La Bruyere, appeared with a better grace than a blockhead of a dancing-master: not but that the graces of behaviour have their rule, and even their use in the offices of the animal œconomy, but it is necessary that they should be animated with mind; they then become more striking and agreeable. The blockhead has greater need of cultivating his outside, than a man of wit, since he would be insupportable was he not to borrow some exterior graces. But the man of wit, who stands in no need of recommending himself by an outward appearance, is not the less blameable when he affects an intire indifference in this respect: There are few who have a right to set themselves above rules, less consecrated by the manners of the times, as Mr. Andry remarks, than by the nature of things, by decency, and the relations we find established in society; in a word, by the manner in which it is agreed, that we ought to make our appearance in company, to stand, to sit, &c.

CHAPTER IV.

Of the chronical diseases of children.

NO body is ignorant that fathers and mothers transmit to their children the traces of their features, their passions and diseases. Wedelius, in his Pathology, says, that he saw a child born with an obstinate cough, the mother herself coughing very much during the time of her pregnancy. We find in many authors observations that prove this communication of the diseases of fathers and mothers to their children; for instance, of children born with the small-pox, the mother being attacked by the same disease during the time of her pregnancy: of fathers affected with the stone, who produced children who had stones in the bladder at their birth. It is common for fathers and mothers who have red spots on their skin, to transmit the same marks to their children. I have seen a mother, who, during the course of her pregnancy, had her nose frequently stopped with a cold, delivered of an infant who had the same disorder in the nose, the skin of which was a little inflamed. In a word, children but too often inherit the asthma, epilepsy, gout, ptific, and other diseases of their parents. But these disorders are generally incurable, the organs being necessarily affected by them from the time of their very formation: we shall not therefore enter into a particular account of these diseases; but shall satisfy ourselves with observing, that their effect is shewn sooner or later, according to the delicacy or strength of the parts originally attacked,

tacked, and the importance of the offices that depend on these organs; and according to the food given to these children, and the nature of the climate in which they live. We shall also observe, that most of these diseases being communicated at all ages, the difference of their being communicated by the father or mother ought never to induce us to vary the treatment of them. In short, we shall confine ourselves in this last part of our work, to those that are most peculiar to infancy, and depend on a fault of the organs, as a disposition to the stone, or the alteration of the nourishing juices of parents, nurses and children, such as the king's evil and rickets.

S E C T. I.

Of the disposition of children to the stone in the kidneys and bladder.

All authors who have treated of the diseases of infancy have regarded the disposition to the formation of stones in the kidneys and bladder, as very remarkable at this age; and indeed it is more visible in infants than in adults. It cannot be doubted that the cause of this disposition depends on the state of the solids and fluids of infants. For,

First, If we reflect, that the solids of infants are, as we have many times repeated in this work, more soft, flexible and relaxed than those of adults, we shall not be surprized at their being very subject to the stone. The relaxation of their solids must necessarily favour the retention of the humours in the parenchymous parts of the viscera. The reins are very

liable to the disorders occasioned by these stoppages, since they give passage to humours that contain parts very ready to concrete and take a kind of earthy turn.

What we now say of the reins, ought to be extended to the bladder; which has certainly not yet acquired, in the time of infancy, the elasticity that is necessary for its emptying itself entirely; and perhaps we may at all times find urine in the vesica of infants. Besides, the internal membrane of the bladder of infants ought to be considered, as being in proportion as soft, and as well filled with serosities as their pituitous membrane, for instance; consequently it ought to be less susceptible of motion and irritation, and more fit for separating a great quantity of mucous juices.

Now supposing that the flowing of the urine has occasioned in the kidneys or bladder a kind of purse, or passage that has no outlet, we may easily conceive that the urine must stay there, deposite a sediment, and form small gravel, which will become the seed of stones, which stopping in the kidneys or bladder, will be continually enlarged by the addition of strata formed by the sediment of fresh urine.

Secondly, The bad quality in the humours of infants, which makes them more liable to form stones than those of adults, to all appearance, consists in a kind of condensation, or glutinous consistence, which renders those humours less fluid, and obliges them to remain in the reins and bladder, as soon as the force of the solids is insufficient to move them: This disposition of the humours of children to thicken, is incontestible. Scarce has their urine
stood

stood for a short time in a cold place, when we see a kind of jelly on its surface, that is stronger and more complete than in that of adults. In fine, the superabundance of the nourishing juices ought to be accounted one of the principal causes of this disposition of children to the stone. Their bones, their cartilages, tendons and muscular parts not having yet acquired the degree of growth destined for them, can we be surprized if the juices necessary to this growth stay in the vessels, thicken there, and at length fix in the organs that least oppose their resistance? Now we have already observed that the kidneys and bladder are more proper than any other of the viscera to receive and retain these liquors.

Moreover, there are distant causes which favour the formation of the stone in children, such as the little activity of the milk and farinaceous aliments with which they are nourished, the want of exercise, especially in the parts of generation, which do not acquire any considerable degree of strength till the age of puberty.

We shall not give an account of the remedies proper for the cure of the stone; since they are nearly the same for infants as for adults. But shall satisfy ourselves with adding here two reflections that appear to us of importance.

1st, That the custom we have proposed of feeding infants with Van-Helmont's panada, would, to all appearance, oppose the formation of the stone; by exciting a little more forcibly the digestive organs; the softness of the solid parts would then be less considerable; they would be more active, and much better

able to favour the expulsion of the sediment which serves to form the stone.

2dly, That it is not so necessary as many physicians and surgeons imagine, to perform the operation of cutting children for the stone. This ought to be undertaken as late as possible, in order that the stone may have time to acquire a certain bulk, and that the juices which served to form it, may have changed their nature, or be totally exhausted by the progress of age. This would be a means of preventing many returns of this disease, which too often happen through an ill-judged precipitancy in the operation. As for the rest, nobody is ignorant, that children support it better, and are more easily cured than adults.

SECT. II.

Of the scrofula, or king's evil.

The king's evil consists of hard obstinate tumours, commonly situated about the neck, the groin, and the shoulders. This disease children are particularly afflicted with, and it is endemical in mountainous countries. People have hitherto considered it as an irregular disease, without order, and without any fixed progress; they have imagined that it is kept up by a general corruption of the lymphæ, which is to be corrected by alteratives differently combined. Vague and uncertain reasonings, methods of cure without any settled views, cures produced by nature, or medicines, the virtues of which were unknown, and which were given at random, are all that is found on this subject in the writings of the ancient physicians. The difficulty

culty they had to know the seat of this disease, and to point out a proper plan, or regular method of cure, determined people to have recourse to superstition and enchantments. The modern authors themselves have been but little better acquainted with the nature of its virus, and the means capable of destroying it. Stahl was the only one who had a true notion of this disease : but he has not carried his ideas so far on this subject, as might have been reasonably expected from so great a genius. What treatment then ought we to fix upon after observations so ill made, and reflections so little conformable to the laws of the animal œconomy? Must not these increase the embarrassment of those who would open a new road? We should indeed have been under this uncertainty, had not M. de Bordeau's work * seen the light; the theory of which we have found so natural, the treatment so methodical, and supported by a number of observations made in a country where the king's evil is endemical, that we shall, without the least hesitation, give an extract from it.

The cellular web, which this author makes a particular organ, that nourishes all the parts of the body, by being spread over them in stratas or beds, ought to be considered as the principal seat of the king's evil, or as the part most susceptible of a scrofulous disposition.

This disposition consists in a dry, brittle, and rough turn; the beds of nourishing juice which are found more slight in the cellular web,

* See the second volume of Memoirs of the academy of surgery.

acquire this disposition by the bad conformation of the nourishing paste itself, which being rough and liable to break, can form only beds without strength, flexibility and the necessary equality. Now this bad composition of the nourishing paste is a consequence of the acidity of the juices contained in the stomach of the persons affected with the king's evil, which their digestive powers are incapable of destroying. The air, water, milk, and other aliments in countries where the king's evil is endemical, facilitate still farther the production of this acrimony.

Thus the scrofulæ ought to be considered under two distinct views: First, they depend on a disorder in the humours; the parts of the juices destined for nourishment, are found soured by the acids contained in the primæ viæ; from thence forward they are affected with a disorder, and an alteration that renders them less ductile. Secondly, they depend on an organical disorder; the beds of cellular net-work partake of these impressions in proportion as they become formed and hardened.

But as the motion of the organical parts of the body incessantly opposes the fatal consequences of the scrofulous disorder, it must necessarily make a greater progress in the organs where the vital motions, the motion of nutrition and growth are slower, and where the beds of nourishing juice may with greater facility follow their propension to adhere to each other. It is not therefore astonishing, that the glands are the most sensible of the scrofulous disposition; that they become the most common seat of the dreadful symptoms by which it is characterized;

characterized; that they swell, harden, become scirrhus, &c.

These several modifications do not always proceed from a mere fullness or stoppage of their vessels, but from the body of the glands acquiring insensibly an equal, muddy, and almost carnosé consistence. It is nearly the same with respect to the hardness of a scirrhus, which is not caused so much by the stoppage of the humours in the vessels, as by the homogenous turn which the vessels and humours have already taken, and which render them almost of the same consistence and solidity. All obstructions then, as Boerhaave assures us, are not capable of resolution: that author is therefore wrong when he says, "*Obstructiones quatenus obstructions sunt, sanantur omnes mercurii viribus.*"

The lymphatic glands, the glandulous viscera, the extremities of the bones, the articulations, and the eyes, nose and lips are the parts most exposed to the scrofulous virus. The particular structure of the brain, and the offices to which it is destined, preserve it to a certain degree from this inconvenience.

It is therefore necessary in the treatment of the scrofula, in the first place, to rectify the digestions; and in the second, to re-establish the order of the excretions, and as much as possible to give to the humours of children, afflicted with the king's-evil, a turn approaching to that of adults.

Ipecacuanha, repeated purgatives, bitters, jesuits-bark, antiscorbutics, acids, and alkalies, are the medicines most capable of drying up the
source

source of the bad nourishing juice which forms the scrofulous disorder.

But as it is necessary to bring the beds of the cellular web already infected with a disposition to a scrofula, and to make nature herself endeavour to conquer it, by exciting a kind of fever, which we are going particularly to mention; art ought also to join its assistance, in order to endeavour to cause the vessels to act in so considerable a manner as to destroy the beds of the cellular web already spoiled, which would not fail to communicate the scrofulous contagion to all the others. Now, mercurial frictions produce this depuratory fever. The mercury acts principally on the small threads: it destroys the new beds, the smallest first, and at length those that adhere a little more together, and they are both drawn away by the current of humours, and carried to the general excretories under the form of a purulent matter.

Mercury always succeeds best when care is taken to accompany its use with drinking, being pumped and bathing in the mineral waters of Bearn, those of Barrege, and many other springs found in the Pyrenean mountains. These fat, unctuous, soapy, and perhaps sulphureous waters, which are so penetrating and dissolvent, and which incorporate with the blood and nourishing juices, changing their very constitution, agree perfectly well with mercury. They prepare the way for it, oppose the ravages it almost always commits when used alone; they give strength to the cellular webs, by increasing their vegetation, putting them in a condition to repair the losses occasioned

sioned by the scrofulous virus ; and, in fine, act in this case as in all other cicatrices formed by them.

It is necessary that there should be a general suppuration of the parts affected by the scrofulous virus, for removing the beds of cellular webs already spoilt ; it is also necessary, that there should be a kind of cicatrice, or general cicatrization of these same parts, to facilitate the reparation of the beds of cellular webs ; for they will the more easily re-produce themselves, when the first that comes to cleave to them have acquired a callous state, resembling the cicatrices of wounds just closed.

Though people have hitherto considered the king's-evil as a disease without the least order or regularity, it has nevertheless its gradual approach, its progress, end, and crisis ; and we may distinguish three different states of this disease, which ought not to be confounded.

The first state of the scrofula is as difficult to be known as the first state of a slow fever. It does not shew itself by any very visible sign. The beds of nourishing juices are not so far altered, as to interrupt the nutrition, and other offices that belong to them. Let it be added, that in this state, which is almost always that of infancy, the solids have not yet acquired that degree of activity which renders them susceptible of the disorder which characterizes the second and third states of scrofulous diseases.

The change of the air and food, the privation of milk, the use of absorbents and bitters, of wine, chocolate, and coffee, are the means that ought to be employed in the beginning of the scrofula.

As to the beds of the cellular webs that are already spoilt, we should attempt to remove them with great precaution by mercurial frictions, and the waters we have recommended : for it is to be feared, that these assistances, administered with too much precipitation, will too speedily bring on the second state of this disease. It is better to trust to nature, which alone can re-establish the beds of the cellular webs in their primitive state. Would not then the inoculation of this disease be proper ? would not this be the only means of rendering it less dangerous and obstinate ? But, till such attempts are authorized by the laws, and confirmed by an evident success, a physician ought to limit all his views to seconding the efforts of nature, by a regimen proper to the state of the disease, and to improving the effect of the revolutions of age, which are commonly very salutary in the case before us.

The second state of the scrofula is a kind of depurative fever, which we ought to follow with attention, to preserve, and sometimes even to augment ; we should conduct ourselves in this state of the scrofula, as in the fever attending the suppuration of an acute disease ; we should preserve the freedom of the excretions, and even excite them when the juices that are produced by the dissolution of the shreds of the cellular webs are disposed to take another road besides that of the general excretories.

We shall observe here, by the way, that certain diseases of infancy destroy the scrofulous virus, and that this disease would neither be so common nor so dangerous among infants, if their parents took the precaution to get cured
of

of the scorbutic, scrofulous, or venereal virus, when they had the misfortune to have it, and especially if they made use of the method of feeding children with the panada of Van-Helmont, which we have proposed in the fifth chapter of the first book.

The humours which appear in the second state we are speaking of, proceed from the reflux of the perspirable matter into the cellular webs and glands, from its stay there, and mixture with the excrementitious humours produced there by the fever, and which should have been evacuated by the strainers appropriated to that use.

The diagnostic and cure of these tumours require great judgment; for they are too various to admit of any fixed rules for their treatment. Sometimes we should increase the extent of these scrofulous tumours, by directing towards them a larger quantity of humours; sometimes we should oppose the torrent of the same humours, and turn them to some other part; and it is often necessary to lose sight of them, to trust their cure to nature, and to attach ourselves to other more dangerous symptoms. In fine, the method of curing the tumours which attend the second state of the king's-evil, depend on their position, extent, hardness, and number, on the strength and temperament of the patient, on the nature of the climate he inhabits, &c. The application of topics, the knife, caustics, or fire, require the greatest care; and when we are obliged to make use of these, we ought never to deviate from the rules consecrated by sound practice.

The third state of the scrofula, in which physicians are more frequently consulted, is almost

most always incurable ; especially when it is hereditary, or has been communicated to infants by their nurses ; and when it is the effect of the climate, which a commerce with the scrofulous persons who inhabit it renders more contagious. This disease, when arisen to its third degree, is commonly attended with scabs in the nose and lips, stoppages and specks in the eyes, paleness in the face, swellings in the joints, a laxative disposition, swell'd belly, tumours in the neck, ulcers in the breast, &c.

We ought not to attempt the use of remedies in this third state of the scrofula without an extraordinary precaution. The tumours which accompany it are then schirrous, and not to be resolved ; they become cancerous, if irritated by topics, or internal medicines that have a small degree of activity. Emollients, emulsient cooling drinks, diluting apozems, and all the other remedies that are considered as preparatory and proper for facilitating the success of those designed to be afterwards prescribed, are seldom of any use. A diet agreeable to the constitution of the patient and to the climate in which he lives (for the diet proper for the inhabitants of cities does not agree with the inhabitants of the country) purgatives, and sometimes bleeding, mercurial frictions, absorbents, the jesuits bark and cauteries, are the only assistances from which any relief can be expected.

It is necessary to correct, as much as possible, the bad quality of the air, and the aliments that favour the progress of the scrofulous humour. The smell of certain resins, pitch, &c. while burning, smoaking tobacco, drinking

ing coffee, &c. do not a little concur in correcting the malignity of the scrofulous virus. The persons who are obliged to feed on milk, and farinacious meats unfermented, ought to use a little spice with these aliments, and to take care to have the water they drink boiled, and always mixed either with wine or the decoction of some bitter and nitrous plant. They ought especially to lay aside all thoughts of marriage, or at least never marry but when they are very young. It would be also extremely proper to make them travel, was it only from one village to another, and to remove them into another climate by uniting them in marriage with the inhabitants of the neighbouring provinces, &c.

SECT. III.

Of the rickets.

The rickets, which may be considered as a disease peculiar to children, was observed for the first time in England towards the beginning of the seventeenth century*. What we read in Hippocrates† has made some authors

* Anno 1628, in oppido Southampton *rickets* primum vocari audiui; eodemque anno in agro Eboracensi observavi, ubi nomen illud erat ignotum. *Primeros. de morb. infant.* p. 121.

† Tale quid insinuare videtur in pueris quibus ante corporis augmentum spina in gibbum attollitur; atque ait alibi crura emaciari, pectus in acutum tendere, difficulter spiritum & cum sono trahere, atque tubercula dura & cruda circa pulmonem aboriri — Est etiam aphorismus huc spectans. Quicumque gibbi ex asthmate, aut tussi fiunt, ante pubertatem pereunt. *Hippocr. libro de articulis, & libro de morbis*, p. 122, 123.

imagine, that the rickets was known in his time : but that passage does not appear to me to be a sufficient foundation for such an opinion ; and the silence of ancient physicians on this subject is a better proof of the contrary. This disease is more common in England, France and Holland, than in Spain, Italy, &c. and it is said to be very uncommon in Denmark and Germany. Glisson and Majou, two physicians, have described it in a particular manner, and we shall give the sentiments of these authors on the rickets, in treating of the causes by which they may be produced. We shall begin with describing the most usual and remarkable symptoms of this disease.

Ricketty children have a large head, a ruddy and bloated countenance ; their eyes are commonly dull, but sometimes they are remarkably lively ; they have a wit above their years *, and a serious sensible air ; the breast is contracted and narrow, the respiration interrupted, the stomach and intestines filled with wind ; the back is hollow, the belly large, the feet, hands, and especially their articulations, are of too large a bulk, in proportion to the other parts of the body ; the dilation of the carotids and jugular veins are very considerable ; the mouth is overflowed with saliva, the separation of the periosteum, caused by the swelling of the bones, sometimes gives these children very violent pains and convulsions : they walk with great difficulty ; their teeth are black and carious, and they have a weakly and cacochymious

* Sapientiam præmaturam periculis plenam in infantibus statuit. Horstius, tom. III. p. 188.

look. This state is at length followed by a slow fever, diarrhæa, marasmus, &c.

It would be difficult to determine, whether this disease more commonly attacks the children of the common people, or those of the people of quality. I have seen it in all stations, and have almost always observed, it proceeded from a different cause. If a bad quality in the climate which is common to them all, finds in the first a favourable disposition, occasioned by bad nourishment, it more frequently finds in the last a constitution vitiated by the passions, diseases and excesses of their parents, more proper for strengthening the virus of this disorder, and which renders its consequences more dangerous.

The rickets does not commonly appear in children till the seventh or eighth month after their birth, and they are seldom seiz'd with it after they have passed the third year without being affected by it. The time between the two terms we have fixed is the only one in which this disease shews itself. It is then that the bones of children become knotted; that is, their articulations grow thick, and there is formed at the union of the cartilages of the ribs with the vertebræ, at the knees and ancles, protuberances like the knots formed in plants, and on the branches of trees.

Dentition; the ill qualities of the milk, and its mixture with other aliments but little analogous to it; the change of food, at the beginning of their being weaned; the repercussion of the crusta lactea, occasioned by topics applied improperly or without precaution; convulsions, living in a moist air, want of ex-

ercise, the worms, and the voracity which people take great care to keep up, by giving children all the food they desire, are most commonly the distant causes of the rickets. This disease is also sometimes hereditary, or produced by some other disorder in their parents, as the scurvy, epilepsy, the venereal or scrofulous virus, &c.

The bending of the bones, and the other symptoms that attend the rickets, may also owe their origin to the bad situation of infants in the mother's womb, to the falls or violent blows she may have received in the time of her pregnancy; to the efforts she may have made; to different compressions of the matrix caused by schirrous tumours, or strait lacing, to the carelessness and ignorance of midwives, rockers, nurses, &c.

It is not to be wondered at, that the brain, which does not find in the bones of the cranium, of children troubled with the rickets, a necessary degree of resistance, should extend and dilate them. This dilatation increases the size of the head among those who are troubled with this disease, and the greater liberty of the nervous fibres of the brain, which is no more than a consequence of it, renders the animal functions more vigorous and active. The size of the liver, spleen, and all the other viscera of the lower belly, also increases only because the ribs and spine of the back have not strength sufficient to oppose their growth. The thighs and legs are obliged to yield to the weight of the body, and the irregular twitching of the muscles, &c. in fine, the spine bends in different

rent places, from the softness of the vertebræ, &c.

It is not difficult to determine the diagnostic of this disease: it has particular symptoms which will not permit the physician to confound it with any others. But when we would fix its immediate cause, and establish a regular method of cure, we find ourselves stopped by many difficulties.

Glisson attributes the bending of the back, of ricketty children, to the unequal distribution of the nourishment they receive. If the tibia, for instance, receives more of the nourishing juice on one side than on the other, and grows most on the side where it is most nourished, it must necessarily bend on the side that is deprived of nourishment, or that does not receive the same quantity.

Majou pretends, that this bending of the bones proceeds from a want of nourishment in the soft, muscular, and tendinous parts. In this case, says he, the bones bend nearly like a young tree, whose trunk and superior extremity is tied with a cord, which not stretching in proportion to the tree's growth, obliges it to bend on one side. Now, the muscles act on the bones as the cord acts on the tree, in the example proposed.

M. Daverney believes, that the marrow and nourishing juice of the bones are not only too aqueous, but that they are loaded with an ammoniacal salt, which causes their softness, their bending, their irregular extension, and, in a word, all the phænomena of the rickets.

Each of these three opinions, I imagine, may serve to discover the true cause of the

rickets. It seems, in fact, to consist in a disorder in the nutrition, in the unequal growth of the bones, and in the activity of the nervous fibres, which not being stayed by the resistance of the solid parts of the bones, cause considerable twitchings in the different parts of the body, for want of the tenacity of the nourishing juice, that cannot adhere to the solids which it ought to extend: and, in short, in its acid quality, which renders its vessels brittle, &c.

Perhaps the obstructions of the viscera of the lower belly, and especially those of the glands of the mesentery, may be the cause of the unequal distribution of the nourishing juice, and its alteration: at least, it has been observed, that in all the children who died of the rickets these glands were schirrous, as well as all the other glands of the breast and lower belly. But, if this stoppage is the effect and not the cause of the rickets, it is not the less necessary to empty them.

The principal views we ought to propose to ourselves, in the treatment of the rickets, are, 1st. To favour the action of the digestive organs, and to diminish the quantity of the acids retained in the stomach. 2dly, To correct the bad quality of the lymph. 3dly, To remove the obstructions of the glands, and to evacuate the superabundant humours which stagnate in the bones, and there acquire a pernicious quality. In fine, to open the general excretories, in order that all the excrementitious juices may be the more easily expelled by the efforts of nature and the action of the organs.

Emetics, purgatives, absorbents, stomachics, sudorifics, aperients, and slight dissolvents, answer

swer all these purposes. The most simple medicines, such, for instance, as the tincture of rhubarb, the decoction of bitter and nitrous plants and neutral salts, continued for some time, and assisted by a proper regimen of life, are commonly more efficacious than the most complex medicines. In this disease we ought to expect more from nature than from art. We should take particular care, that children do not encrease the bending of their bones by walking too much without support, and by making too considerable efforts. These deformities will also increase if no care be taken to give them a little exercise.

In short, there appears to be such great analogy between the rickets and the king's-evil, that we may call it the scrofula of cold countries. In reality we observe in these two diseases, almost the same cause, the same steps, the same changes, and the same crisis. This parallel seems to deserve to be followed with the utmost attention, since, in all probability, it would furnish some useful lights, and serve to fix one and the same method of cure in these two diseases, which have such a striking resemblance between them. But it would be necessary to confirm this resemblance by repeated observations, made with much care, in countries where the scrofula and rickets more generally prevail.

We shall add here, in a few words, First, That children frequently become ricketty at the cutting of their first teeth, after a verminous disorder, epilepsy, &c. and that those whose bones continue knotted till ten or twelve years of age, almost always want some of their teeth.

Secondly, That the rickets which begin in early infancy, are always the most dangerous.

Thirdly, That most ricketty children, are **not** cured till they are five or six years of age ; and that those who do not then recover are commonly valedudinary and deformed for the rest of their lives.

Fourthly, M. Du Verney asserts, that the greater the bendings of the extremities of the body and other parts are, the more difficult this disease is to be cured.

The same author assures us, that if the rickets are attended with eruptions, the cure will be the more speedy.

Fifthly, Girls, whose bones have been knotted till they were eight or nine years of age, have commonly the cavity of the basin very straight. Now, we know how difficult and laborious a delivery is to women who are thus formed : it would therefore be very prudent to forbid those marrying, who were not cured of the rickets before their fifth year.

Sixthly, The bending of the spine of the back is commonly the first observed in the rickets. It is caused by the softness of the vertebræ.

Seventhly, The rickets is often joined to an hydrocephalus, and is then incurable.

In short, those whose spine is not too much bent, who eat with an appetite, are gay, have sparkling eyes, and love exercise and company, are oftener cured than others.

These are the most common diseases of infancy, of which we had proposed to give a description. We might here finish this work ; but in order to render it more complete, we shall

shall add a chapter on the uncommon and extraordinary diseases of the same age.

C H A P. V.

Of the extraordinary and uncommon diseases of infancy.

MOST of the authors who have treated on the diseases of infancy, have spoke of a kind of leanness peculiar to that age*, of umbilical and cutaneous worms, of hairs growing between the flesh and skin †, of obstructions formed in the nostrils ‡, of the disease of the solstices, or of Syria, of vermine breeding in the head, of a serous and purulent running of the ears, &c. Though these inconveniences are commonly symptomatic, and seldom happen to children, especially when care is taken to wash the skin and keep them clean; we shall nevertheless give, in a few words, such a description of them as is most conformable to what has been said by the best physicians, and to the observations made by ourselves.

This chapter will also comprehend the rare and extraordinary diseases of infancy that are considered as merely organical, or are at least most generally attributed to a disorder of the solids, though the disorders of the humours may contribute to them.

* Mercurialis de morb. puerorum.

† Claudinus de empir. ration. Tom. II. de morb. inf.

‡ Primerosius de morb. pueror. p. 20.

S E C T. I.

Of Umbilical Worms.

Children are sometimes subject to worms that breed about the navel, and throw them into a marasmus, the lips turn pale, the natural heat diminishes, the slow fever increases, and the whole body falls into the most excessive leanness.

There is no proof of having this worm, says Etmuller *, but that of having tied to the child's navel one of those fishes called gudgeons, when a part of that fish being the next day found eaten, another is put on in the evening; and this is repeated three or four times, as well to be certain of the worms being there, as to attract it by this bait. At length, half of a nutshell is taken, in which safin and the powder of Venice crystal are mixed with a little honey; this shell is applied to the navel, when the worm coming as usual, and attracted by the honey, eats of this mixture, which kills him, after which the child is made to swallow some absterfve medicine, to carry off the worm.

I should have been much inclined, says M. Andry, to treat what is said of this worm as fabulous, was it not for the testimony of Etmuller and Sennert, which has made me suspend my judgment. The first asserts, that Mr. Michael has cured many children of this worm, by observing the method just described; and the second also relates the authority of Bringgerus, who was an eye-witness, and says, that

* Etmul. de morb. inf.

a female infant of six months old, having a fever that could not be cured, the mother suspected that it was caused by a worm in the navel, and in order to cure her of it, she put a live gudgeon on the infant's navel, bound it on with linen, and left it there twenty-four hours; that the worm eat the fish, and having left nothing but the linen, retired into the vein, (this is the term he uses;) that the mother every day renewing the repast, the same thing constantly happened; but that eight or ten days after, the linen applied to the navel falling off, drew the fish and the worm that was eating it along with it; and that the worm, not being able to re-enter the umbilical vein, was found dead on the infant's belly; that it was round and yellowish, was about half a foot in length, and had a skin harder than that of common worms.*

Rupert, the intimate friend of Sennert, relates a like story of an infant of the same age, who spent the night in great agitations, cried incessantly, and voided a green and often an ash-coloured matter, that might have been taken for minced meat. He says, that there were given to this infant many useless remedies, after which a gudgeon was applied to the navel: that in two hours time the fish was gnawed, and a hole made of the bigness of a pea; that another was put to it, which the next day was eaten quite through to the linen; that as they observed this, they applied to the navel half a nutshell filled with a paste made of Venice cry-

* *Traité de la génération des vers dans le corps d'homme*, p. 73.

ftal pounded small, mixed with honey and favin; that in the morning they found part of this pafte eaten; and that having renewed it for three days fucceffively, the fame thing happened on the two firft days; but that on the third they took away the mixture quite entire; that this having made them judge that the worm was dead, they made the infant fwallow hart's-horn in the water of Tonacet, and having at length examined its clouts, they found the worm with the head separated from the body; that this worm was a palm in length, that the head was as large and thick as a fmall lentil, and of the figure of that of a fly; that they could perceive its eyes, near which was a well-formed trunk, and that on the worm's being voided all the fymptoms of the difeafe vanifhed.

M. Andry believes, that thefe umbilical worms are ingendered in the inteflines, and that they do not appear in the navel till they have eat through the inteflines and fkin. He fupports his opinion by the different obfervations of Etmuller, Foreftus, and many other authors, who have feen patients from whom the worms of the inteflines were thus drawn out by the navel. This opinion appears probable. Thefe worms may, however, be ingendered about the navel, efpecially if the extremity of the navel-string becomes corrupted, either by the bad difpofition of the infant's humours, or by fome accident happening to it, from the negligence of the midwife, &c.

S E C T. II.

Of small cutaneous Worms.

Many physicians have denied the existence of this kind of worm, which particularly attacks infants from six months to two years old. Etmuller and Dolæus, however, were of a contrary opinion, and even give a description of it. This worm, says these authors, is of an hideous figure, it is nearly of an ash-colour, its head is armed with two double horns, which are pretty long; its eyes are large and spherical, and on the extremity of its tail there is a tuft of hair.

These worms are chiefly lodged between the flesh and skin, in the muscles of the arms, thighs, &c. and when viewed without a microscope, resemble those bred in cheese. It is only observable that they are smaller, and have black spots on the head.

But though they are scarcely to be perceived by the naked eye, they are extremely troublesome. An infant is known to be afflicted by them, from his feeling a violent itching in the skin; from his wakefulness and continual crying, and from a kind of canine appetite, which lasts till the end of this disease: in short, the skin becomes covered with ulcers, a slow fever seldom fails to appear, and to produce some mortal obstructions in the viscera.

This disease is described by most authors under different names. Some of them, as Avenzoar and Alpharabius, have called it *bovina passio*. Claudinus says, that he has found it described in the works of many physicians under
the

the names of *vermes consumentes* and *vermes aridi*. Kufnenus and Etmuller have called this kind of worm *dracunculus*; but they very injudiciously confound it with some others that bear that name, which, according to the unanimous testimony of the Greek, and all the Arabian authors, are peculiar to the inhabitants of India and Ethiopia.

This disease must be attributed to a particular disorder of the skin, which will not permit the passage of the matter that ought to be carried off by insensible perspiration, or to a bad quality in that humour which obliges it to stagnate in the cells of that organ. The putrid fermentation of that dew, excited by the heat of the body, by the action of the air, and by its too long abode in the skin, doubtless unfolds the cutaneous worms of which we are treating.

The use of too viscous aliments, and especially those that to a certain degree are corrupted, as sour milk; a want of neatness, breathing an unhealthy air, and, in a word, every thing that is capable of disturbing the order of perspiration, are so many distant causes of the production of cutaneous worms.

Among the topics recommended for this indisposition, I believe the mercurial ointment to be the most efficacious.

We ought not, however, to neglect the use of internal medicines, as for instance, purgatives, bitters, theriaca, * antiscorbutics, and
mer-

* Galen forbids the use of theriaca to children, because he has seen it, he says, attended with very bad effects. Many authors, however, recommend it, by assuring us, that its use is attended with quite contrary effects. It were

mercurials. The skin of children should also be often cleaned with a little warm water or wine, a proceeding which we have already recommended; and the cloaths in which the child is wrapped should be often changed.

Borellus asserts, that he had a brother seized with this disease, who cast forth continual cries till the worms were got out. He says, that they were brought away by a little honey rubbed over the infant's body; and adds, that these worms began to shew their heads, which were quite black, and that at length they were all extracted by rubbing his back with a piece of coarse linen.

Mothers and nurses almost always attribute this disease to some spell cast over the infant, and this imaginary cause makes them employ a multitude of remedies as useless as they are superstitious.

S E C T. III.

Of the hair growing between the skin and flesh.

Many authors have confounded this disorder with that of the cutaneous worms. However,

to be wished, that both had described, with greater exactness, the particular cases in which this medicine has produced any bad effects, and those in which it has proved salutary. For my part, I have not found any ill effects from theriaca in the different diseases of children, though I have very frequently prescribed it. I cannot say this of diacodium, or opium alone. I have already condemned narcotics, and the too great use made of them by the inhabitants of Montpelier; but theriaca ought to be regarded as a composition that is both cordial and absorbent, the effect of which cannot be prevented by the opium contained in it.

though

though it seems to be the same, and is almost always accompanied with that we have just described, some difference has been observed between them. The skin is sometimes covered with small worms without there being any hairs; and, at other times, rough sharp hairs are seen to come out of it, without any kind of worm being to be found there.

Nurses are subject to a disease nearly of the same kind, which has been described under the names of *cridones*, *villi canini*, *sive pili vermium*. But this indisposition is attended with other circumstances that are well enough known to physicians, and which would be useless to mention here.

Children seized with this disorder cry incessantly; it is said that their backs feel as if pricked with the points of many needles; they cannot for a single moment keep in the same place; they are in continual agitation, and sometimes fall into a marasmus, or into epileptic fits, which carry them to their graves.

The cure of this disease presents two principal views :

First, We should have the patience to facilitate the passage of these hairs by slight frictions often repeated, by the use of warm baths, lenitives, and all the other assistances that may relax the skin, and diminish the pain caused by the irritation of a foreign body that would pierce through it.

Secondly, We should prescribe the use of the diaphoretics and sudorifics most proper for dividing the humours, and hindering their too long stay in the miliary glands.

SECT. IV.

Of the disorders of the tongue, in relation to speech.

The disorders of the tongue are either natural or accidental. They depend on a relaxation or contraction of the muscles ; on the dryness, or too great humidity of its own substance ; on a natural deafness ; on a vicious conformation of the palate, teeth, nostrils, and bridle of the tongue, or the latter being ill cut ; on some polypus, a hurt or wound in any of these different parts ; on fits of the epilepsy, or palsy ; on sudden terrors ; on a bad habit contracted in infancy, &c.

Most of these defects yield to the methods that are proper and peculiar to each, especially when they are early made use of, and repeated with care : they are also sometimes removed by nature, without any assistance from art. We shall here content ourselves with treating on those that are considered as the most common and most incommodious, and which it is possible to remedy.

Of the EXTINCTION of the VOICE.

The extinction of the voice is a disease to which people of all ages are subject ; but it is observed to be most frequent amongst young persons. A viscous matter sticking on the edges of the glotta ; an irritation of the throat, the uvula, the amygdalæ, and the other parts that contribute to the perfection of the voice, sometimes occasion this inconvenience,

Y

which

which frequently degenerates into an habitual disorder.

We ought not to confound this inconvenience either with the being dumb, or with that extinction of the voice which sometimes precedes or which accompanies the quincy. Mutes cannot articulate a single word, but they form sounds, and send forth very piercing cries. In the quincy, besides the extinction of the voice, which does not always happen, the patient has commonly a fever, and always labours under a difficulty of swallowing. In short, in the extinction of the voice people only speak in a low voice, and pronounce their words in a manner proper to make themselves understood, at least by persons who have their ears so well disposed as to hear them.

People reckon among the most ordinary distant causes of this disease, the use of too viscous or too salt aliments; drinking cold liquors after violent exercise; the respiration of air too hot, or too cold, filled with dust, or mixed with the smoke of lamps, candles, or other strong smells; singing; or declamations expressed with great strainings of the voice, in a place too much exposed to the air; too frequent irritations of the genital parts, especially before children have arrived at the age of puberty; too lively passions, as anger, terror, &c.

M. Andry relates on this subject an observation drawn from Paul Spindler, that proves the danger of strong impressions on the soul*. A lady of quality, says that author, being in

* Orthoped. pag. 300.

a fortress, where she was surprized in the night by the enemy, was seized with such terror, that she lost her voice, without ever being able to recover it.

We find, in M. Andry's orthopedia, many other examples of this nature, and many proper recipes for the extinction of the voice which proceeds from some irritation of the throat, &c. but people ought to take care not to use them indifferently; for those proper for the extinction of the voice that proceeds from irritation can never be suitable (though the author has not taken care to make the observation) to those caused by a too viscus humour found sticking on the organ of the voice or near it. I shall not advise, for instance, in this last species of the disorder, the use of pastils made of gum dragon, comfrey, &c. or of gargles made of the honey of Narbonne, the syrup of mulberries, or erysimum. I should prefer oxycrat, the infusions of tea, baum, caryophyllata, sage, or other aromatic plants.

OF INTERRUPTED SPEECH, OR SHORTNESS OF BREATH.

Many children contract this defect through the negligence of the persons entrusted with their education. The bad conformation of the breast of certain children is sometimes the cause of their shortness of breath, and the difficulty they find in pronouncing the latter end of the sentences they would willingly express: but this bad conformation of the breast frequently proceeds from the nurses not taking the precautions we have pointed out in the

chapter of swathing. Many nurses spread over infants in their cradles a heavy quilt, which covers them from head to feet, and intercepts all communication with the external air. Can we be surprized that this manner of covering them by little and little renders respiration irregular, makes children pant, and at last brings on a shortness of breath, with which they are tormented for the rest of their lives ?

M. Andry mentions another cause of this defect. “ Mothers, says he, think they do wonders in obliging children to repeat a multitude of fables and little histories. If the child hesitates the least in the world in uttering them, they immediately reprimand him, and without giving him time to breathe, suggest the word they believe he has forgot. The child then hurries on ; and this precipitation, by being daily repeated, brings on a shortness of breath.

“ Tell us, say they, to the child, the fable of the crow and the fox.

“ The child repeats it, and when he has done, they ask him for that of the ant and grasshopper ; he has no sooner ended it, than they require that of the frogs, then that of the wolf and lamb. They allow him no respite till he has thus successively repeated a great number ; and every day they make him proceed in the same manner, till his lungs can hold out no longer. Have they company ? the child must be called, and this company, at his expence, regaled with five or six fables ; and these they make him pronounce with a gesture and tone capable of destroying all the natural qualifications

“ he

“ he might still have, was he to repeat them
“ in a proper manner.

“ People ought never to force children to
“ learn any thing, or to repeat it by heart.
“ Tell them yourself whatever you think pro-
“ per for them to know ; but do it in a neg-
“ ligent manner, and without obliging them
“ to hear you ; or rather repeat such things in
“ their presence, to some person acquainted
“ with your design. They will then hear you
“ with greater attention, than if you addressed
“ yourself immediately to them ; and their
“ memories, without their designing it, will
“ retain what you say ; so that they themselves
“ will repeat it to you, in an easy and natural
“ manner, that will not do the least violence
“ to the organs of respiration.

“ Another imprudence in the persons en-
“ trusted with the education of children, is their
“ making them learn by heart a great number
“ of prayers, which in like manner, they make
“ them repeat without remission one after ano-
“ ther.” The same author gives the following
example of this fault in his Orthopedia.

“ A little miss who appeared to be of rank,
“ and had her governess by her side, was some
“ weeks ago at mass in a church which I acci-
“ dently entered, and where I stood near her.
“ The child with eyes cast down, which from
“ time to time she lifted up to see if her go-
“ verness minded her, continued incessantly
“ repeating by heart, in a low, but distinct
“ voice, prayer after prayer. One was no
“ sooner ended than she began another, then
“ another, and thus she proceeded without
“ stopping for a single moment. The go-
“ verness

“verness who behaved in a very different man-
“ner, and kept her lips close shut, looked at
“her pupil, who was almost spent, with an
“air of approbation. She, encouraged by
“this silent applause, redoubled her endea-
“vours, and still faster and faster continued
“her prayers. A lady of quality, who, by the
“same accident as myself, was present at this
“sight, which gave her great pain, slightly
“tapped the child’s lips several times with her
“fan, to let her know that she must keep them
“closed ; but the child still continuing, I could
“not forbear telling the governess, that such
“a devotion as that could have no other ef-
“fect but to render the child consumptive,
“and give her a short breath, and that these
“were the least mischiefs that could be ex-
“pected from it : but neither the slight blows
“given by the lady with her fan, nor my re-
“monstrances, were of any effect. The child
“otherwise very pretty, and amiable in her
“person, had a very pale and bloated face,
“which obliged me to add, and to tell the
“governess, that a pale and bloated complexion
“might well be the effect of that singular de-
“votion I had just beheld ; but this speech had
“no better effect than the former ; and the
“mass being ended I left the pupil and her go-
“verness, from whom neither the lady nor I
“could obtain a single word.”

The precipitation with which many people make their children walk when they lead them by the hand, is the cause not only of the luxations of the bone of the thigh, the sprains, and anchyloses mentioned in the section on the diseases of the inferior extremities, but also of the shortness

shortness of breath, and interrupted speech of most of these children. Can we sufficiently blame the imprudence, or rather cruelty of persons, who, for want of observing the precautions which the delicacy of the organs of children require, expose them for the rest of their lives, to disagreeable, and frequently dangerous disorders?

The interrupted speech of children frequently proceeds from a bad habit they are suffered to contract from the beginning of their learning to speak. It is observed, that an infant takes breath before he has completed the sentence he would make use of; and people very injudiciously imagining that age will correct this fault, give themselves no pain about correcting it early. Thus the tongue and the lungs become accustomed to this manner of pronouncing and taking breath, and habit at length renders this defect incurable. Why are not children taught, from the most early age, to pronounce all words distinctly, and in a proper manner? Their music-masters would not then have so much trouble afterwards in accustoming them to a graceful pronunciation in singing, which is so essentially necessary, and which is nevertheless so uncommon amongst persons who pretend to sing.

Interruption of speech is also sometimes hereditary. I have seen an entire family, with whom I passed a part of my infancy, and who were my near relations, subject to this defect. This doubtless proceeded from a vicious conformation of the tongue, transmitted by the father and the mother to their children; but perhaps this defect would never have been communicated to the children, had they not heard

their parents speak in this manner, and had not they thought that they should pronounce well by imitating their broken sentences ; for every body knows that children are mere apes that almost always copy the gestures, behaviour, and pronunciation of those about them.

Of the DEPRIVATION of SPEECH.

An incapacity for speaking ought to be considered as a disease, or organical vice of the tongue, which most commonly appears in infancy, and which has consequently an evident connection with our subject. We find in different authors many remarkable histories of this defect ; but we shall content ourselves with relating only two ; the first taken from Mercurialis, and the other from M. Andry.

Maximilian, son to the emperor Frederic III. continued without the power of speaking till he was nine years of age, and at the end of that term, which is the time when the humidity of infancy begins to disperse, his tongue loosened to such a degree, that he spoke without any difficulty, and at length became remarkable for his eloquence *.

M. de Trefarius, the son of M. de Casa-Major, lord of Gestas, was dumb till he was twenty-three years of age, when he recovered his speech. His parents, who knew from his infancy that he had the sense of hearing, took

* Maximilianus Frederici III. imperatoris filium, usque ad nonum ætatis suæ annum prorsus elinguem & mutum fuisse, beneficio naturæ, testatur sermonem acquisivisse. Mercurialis de morb. pueror. lib. II. cap. ii. p. 319. Orthoped. p. 281.

care to have him taught to read and write, in order to recompense him, as much as possible, for the privation of speech. Their endeavours were successful ; the child, without much difficulty, was taught the use of letters ; he learnt even to form them, and a little after was taught arithmetic ; and it was he who kept all the accounts of the house. In this state he remained, as we have already observed, till he was twenty-three years of age. He was examined by many physicians and surgeons, who made use of the scissars in cutting the strings which were thought to confine his tongue ; but without any effect. He was passionately fond of hunting ; his dogs, accustomed to his signs and imperfect sounds, followed and obeyed him : But after he had recovered the use of speech, calling one he was particularly fond of from amongst the others, that dog, so far from coming as usual to caress his master, ran from him, hid himself, and continued this behaviour for three or four days, at the end of which he returned to his master. On the 16th of April, 1716, our hunter made a proposal, by signs, to a person who was with him to hunt a hare. The time for the chase approached, and they both set out together. When they were upon the spot they had chosen, M. de Trefarius placed the person he brought with him in one post, and advancing a little farther, chose another for himself ; a short time after he had taken his station, he made a violent effort to pronounce some words, when he suddenly perceived his tongue loosen, and he pronounced some articulate intelligible sounds, on which taking his fusée, he ran to the person just mentioned, and spoke to him. This person affrighted at
hearing

hearing him speak, thought at first that he was a spirit, and trembling, returned with him to the house of M. de Casa-Major, where was the whole family, who were filled with equal joy and astonishment at so surprizing a change. From this time M. de Thesarius has had the power of speech. He did not indeed at first talk with such facility as he does at present, some words embarrassed him, and especially the pronounciation of the letter I, but he insensibly acquired by use an easy manner of expressing himself, and at present few words stop him.

We see by these two examples, that the want of speech is sometimes removed by the mere progress of age, or the efforts of nature. We should not, however, neglect the assistance of art, especially when this defect depends on a too great humidity, or a palsy in the tongue *, when it proceeds from a wound in that organ, or in any other part † ; from an obstruction in the veins of the tongue ‡, or its bridle being ill cut, &c.

We ought not to consider as incurable, even a dumbness occasioned by deafness.

Ammanus, in his treatise *de surdo loquente*, or the deaf speaking, points out the means of making

* See Zuing. theatr. prax. med.

† Foresti observ. lib. x. observ. LXXXVIII.

‡ Inspectâ linguâ (muti cujusdam tunc temporis febre laborantis) quæ paulò tumidior erat, sed non admodum, jubeo ut statim chirurgum vocarent, qui venas sub linguâ tunderet — ego isthinc discedens, chirurgum vocant. Sed re infectâ, denuò abiit; cùm autem rursus venissem — Numquid vena sub linguâ secta esset? Responderunt chirurgum apud ægrotum fuisse, sed re infectâ domum reme-

making these persons speak. That ingenious Englishman Wallisius was the inventor of this art, and the abovementioned Ammanus, a native of Flanders, and a celebrated physician of Amsterdam, has put it in practice, after his having considerably improved it.

A witness worthy of credit, if any man ever was, (I mean the celebrated Mr. Winslow, doctor of physic at Paris) has seen the daughter of a rich merchant at Harlem, who was deaf from her birth, and being instructed by M. Ammanus, answered most of the questions that were put to her, provided that she saw the motion of the lips of those who spoke.*

For my own part, I have seen (and I believe the case is not much more uncommon) a mute at Montpelier, named Estive, who understood arithmetic very well, played at cards with great judgment, understood almost every thing said in conversation, and returned an answer in writing to all the questions that were asked him.

S E C T. V.

On stammering, or a difficulty in pronouncing easily and distinctly certain words and syllables.

We shall not here treat of that conformation of the tongue which obliges many persons

asse; revoco chirurgum, eumque interrogo quid causæ fuerit, quòd venas non secuerit? Respondit se nullas venas sub linguâ reperiisse. Ego ad chirurgum conversus—Scalpello, inquam, linguam leviter pertunde, et si venæ minus appareant; quod cùm fecisset, vix sex septemve guttis sanguinis e vulnere emanantibus, (dictu mirum & miraculi instar) nobis omnibus præsentibus loqui æger cœpit. *Foresti observ. lib. XIV. observ. XXXIII.*

* L'Orthopedie de M. Andry, p. 295, 297.

to lisp or to stammer, and pronounce particular words and syllables with difficulty. Experience but too plainly proves, that these defects, occasioned by the natural defect of the organs, are generally incurable. We shall here only treat on the stammering that may be conquered, either by the progress of age, or the assistance of art; such, for instance, as that which proceeds from the bridle of the tongue being too short or too thick; from abundance of serosity in the organs of speech; from too great precipitation in speaking; from tumours arising under the tongue, or on its sides, &c.

As soon as it is perceived that a child stammers, prudence requires that his tongue should be examined by a skilful person. We know that this defect commonly proceeds from the bridle's being too short or too thick, when the child cannot at the same time advance it out of his mouth. The surgeon ought not then to hesitate about cutting this bridle, the doing of which is attended with no hazard, provided he does not cut the salival tubes, the ranulæ, or the nerves under the tongue. If more than four or five drops of blood are seen to flow, it is to be presumed that the point of the scissars made use of in this operation has touched one or both of the veins under the tongue. However, though one of these veins should be opened, it is easy to stop the blood, by applying to it a small piece of linen dipped in vinegar, or in styptic water, or even by holding the finger for some time to the orifice. But if this slight hæmorrhage cannot be stopped by the means we have mentioned, or by any others used in their stead, as astringent powders, a
little

little lint put upon a piece of linen, &c. the infant's life would be in the greatest danger. We shall repeat on this subject an observation which Dionis has inserted in his work, and which has been cited by the author of the Orthopedia.

A famous surgeon of Paris cut the bridle of the tongue of an infant, who had been waited for with impatience, and received with joy as the heir to a great estate; but this consolation was indulged but a short time to the fond parents; for he was soon deprived of life: the surgeon not imagining that he had opened one of the *ranulæ* in cutting the bridle, went away as soon as he saw that he sucked with ease, and the nurse having put the child in the cradle, after she had given him suck, he continued to move his lips as if he was still sucking; to which but little attention was paid, as there are many children who are accustomed to this motion when sleeping. It was nevertheless the blood which proceeded from this vein which he swallowed as fast as it entered into his mouth: and its flowing was also excited by his sucking, which he continued till there was no more blood in his vessels, which was only perceived from the weakness and paleness of the infant, who died a few hours after. On his body's being opened, it was found that he had swallowed all his blood, and that his stomach was filled with it.

Stammering consists of repeating the first syllable two or three times over, and then pronouncing those that follow with extraordinary swiftness. This defect extends no farther, if it
be

be not attended with distortions of the countenance.

There is another defect, which consists in huddling many syllables together, without a person's giving himself time to arrange each in its proper place.

These two defects in the pronunciation, which appear so opposite, proceed from the same causes, an embarrassment, thickness, or too great humidity of the tongue, or from a too great precipitation and hurry of mind. It is therefore commonly seen that the persons most subject to these defects in familiar conversation, express themselves with ease when they are obliged to speak in public. By means of pronouncing all syllables with deliberation, we obtain the power of pronouncing them with greater ease; but when this alone is not sufficient to remove these kinds of vicious pronunciation, and it is upon good foundation suspected that they are caused by an abundance of humours in the organs of speech, recourse must be had to the remedies we have already mentioned, when treating of the interruption of speech, &c.

The too great precipitation in speaking, which is pretty common among children, from their great vivacity, or for want of having a clear idea of what they are saying, is generally corrected by age, by the care of their governors or parents, and by the repeated endeavours they themselves make use of, when they are arrived at a more advanced age, or even by the means which Demosthenes employed with such success.

Among the people who lisp, there are some who cannot pronounce an R or an L; Zuinger observes, that Gaspard Bauhin, the famous botanist, was of this number. Others make use of T in the room of C and D; of P and C instead of B and G; and others of F for V; others, in short, find an extreme difficulty in pronouncing C, X and J.

A musician, who had great talents, being introduced to Lewis XIV. that prince made him sing, and appeared at first very well pleased with him: when the musician, encouraged by his favourable reception, sung with great emphasis, *Zupiter armé de tonnerre*, &c. “Zupiter
“armed with thunder.” But his lisping spoilt all, and the king would never after hear him mentioned.*

It now remains that we say something of the small tumours that arise under the tongue, or on its sides, which physicians term ranula. These small abscesses, which are with difficulty brought to a suppuration, are commonly filled with a mucilagenous humour contained in a cystus or bag, which many authors would have taken away; but which it is more commodious and more safe to open, by making a slight incision in order to let out the matter. The commentator on Dionis believes that there are two kinds of ranulæ; the one round, placed under the tongue, and produced by the dilatation of the excretory canal of the sublingual gland, and the other rather long than round, placed on the side of the tongue, and formed by the dilata-

* See Orthopedie, tom. II. p. 312.

tion of the excretory canal of the interior maxillary gland. This author asserts with reason, that the matter which fills these tumours is nothing else but the saliva which stays there, and is amassed by little and little on account of its thickness and the atony of the canal.

We sometimes find in these tumours a fleshy excrescence, a small stone, or a sandy or chalky substance, which hinders children who are troubled with it not only from speaking and swallowing, but also gives them violent pain. These tumours, which are always formed like the tartar which gathers about the teeth by the thickening of the salival liquors, seldom terminate by resolution and suppuration: they more frequently become cancerous, and children are more subject to them than adults*. These tumours also sometimes swell to a considerable size.

M. Caumont has cured one of them, that was so large that it hindered his patient from speaking and shutting his mouth. He opened this tumour throughout its whole extent, and took out at least half a pound of a chalky substance: he then cut off from the side of the orifice the scales that would afterwards have obstructed its cure.†

One of the best topics that can be made use of for re-uniting the pellicles that remain separated after the operation, and for entirely drying up the wound, is honey of roses mixed with the oil of myrrh, allum, or the spirits of vitriol, &c. And as it sometimes happens,

* Heist. institut. chirurg. p. 654.

† Operation de Dionis, p. 628.

that the glands situated under the tongue became inflamed and tumified, either before or after the operation, we ought not to neglect bathing them with warm milk, and applying some emollient cataplasm under the chin.

In short, when the tumours become cancerous, we ought to extirpate them as speedily as possible, to apply the most proper balsams for forming a good and speedy cicatrice, and especially to prescribe a moist regimen to the patient.

We shall not here treat of a boy's having the voice of a girl, or a girl's having that of a boy. These defects are scarcely worthy the attention of physicians. Those who would have a pretty full account of these particulars have nothing to do but to read the Orthopedia. They will there find directions easy to be complied with, but which appear at bottom more minute than useful.

S E C T. VI.

Of the kind of convulsion called chorea
St. Viti, or Vitus's dance.

That kind of convulsion described under the name of chorea St. Viti, of which the ancients have left us no description, has been improperly confounded with tarantism, by Wedelius, Willis, Cheyne, &c.

It must be confessed, that these two diseases have a certain connection with each other, and that their symptoms have a near resemblance; but it is evident that they proceed from different causes, and that their cure cannot be the same. The convulsions observed in a taran-

tism are always preceded by the bite of the tarantula ; and the convulsive twitchings which accompany and characterize the disorder we are going to describe, appear, without the person who finds himself seized with them being bit by any venomous insect.

Sennert also confounds this disease with madness, and assures us, that the chorea St. Viti derived its name from the saint who was invoked when any one was attacked with this kind of folly.

Felix Platerus gives an account of a woman who jumped about night and day for whole months together. The magistrates ordered her to be kept by very strong men, who could scarcely support the fatigue they underwent from the continual convulsions of this sick person. Though the soles of her feet were flattened and bruised, she did not leave off jumping and tossing herself about as if she had felt no pain ; and when she was obliged to lie down to sleep, or to sit to receive food, her body was constantly trembling.

Many people believing that these symptoms were the effect of witchcraft, instead of invoking the saint to whose intercession it was supposed the cure of this disease was reserved, had recourse to practices equally superstitious and useless. Magic was sometimes employed ; but what is still more astonishing is, that these sick persons were exorcised as if they had been possessed by the devil.

Some physicians have, without any foundation, pretended, that St. Vitus's dance is nothing more than the hysteric passion ; yet every body knows that this last disease is peculiar to

girls who have attained the age of puberty, and to women who have not a regular return of their menstrual courses.

All authors who have treated on St. Vitus's dance assure us, that children are more subject to it than grown people; that those who are attacked by it do not feel any pain in the head or stomach, much less in the hypogastric region; that they are only subject to convulsive twitchings, which are almost general, or only in one half of the body. In short, the description of St. Vitus's dance given by Sydenham, removes all idea of a perfect resemblance with any other disease.

“ Chorea S. Viti, says that author, convul-
 “ sionis est species, quæ & plurimum pueros,
 “ puellasve à decimo ætatis anno, ad puber-
 “ tatem usque invadit; primò se prodit clau-
 “ dicatione quâdam, vel potiùs instabilitate
 “ alterius cruris, quod æger post se trahit fa-
 “ tuorum more; postea in manu ejusdem la-
 “ teris cernitur, quam, hoc morbo affectus,
 “ vel pectori, vel alii alicui parti applicitam
 “ nullo pacto potest continere in eodem situ
 “ vel horæ momento, sed in alium situm, ali-
 “ umque locum convulsione quâdam distor-
 “ quebitur, quicquid æger contra nitatur. Si
 “ vas aliquod potu repletum in manu porri-
 “ gatur, antequam illud ad os possit adducere,
 “ mille gesticulationes, circulatorum instar, ex-
 “ hibebit; cùm enim poculum rectâ lineâ ori
 “ admoveere nequeat, deductâ à spasmo manu,
 “ huc illuc aliquamdiu versat, donec tandem
 “ fortè fortunâ illud labris propriis apponens,
 “ liquorem derrepente in os injicit, atque avidè
 “ haurit, tanquam misellus id tantum ageret

“ ut deditâ operâ spectantibus rifum move-
 “ ret, &c.”

This difeafe ought to be attributed to an irritation of the nervous kind, to the lofs of the equilibrium of the viscera, to particular diforders in the brain, and ftill more to thofe of the liver. People have in reality obferved, that St. Vitus’s dance almoft always affects the right fide, in the fame manner as cancers, tetters, varicous fluxes, &c.*

Horftius imagined that the convulfions of St. Vitus’s dance depended on a fwelling of the muscular fibres, occafioned by a reflux of humours, as a confequence of the fuppreffion of fome natural evacuation, or from remedies ill adminiftred.

Baglivi, Hoffman, Sydenham, &c. have endeavoured to prove what is much more probable, that the ftomach or intefines were the ordinary feat of this difeafe, and that it ought to be treated in the fame manner as convulfions, or the convulfive motions of children, and as we ought to treat the epilepsy in adults †, by bleeding, purgatives, ftomachics, and antiepileptics, &c.

Dr. Cheyne||, employed in the beginning of St. Vitus’s dance, ipecacuanha, wine and emetic tartar, and repeated thefe emetics many

* See a thefis on the mineral waters of Bearn. *Utrum Aquitanix minerales aquæ morbis chronicis?*

† Verifimile mihi videtur quòd hæc methodus curationi epilepfiaæ adultorum convenire poffit, quod tamen non adhuc expertus fum. Cùm verò chorea S. Viti ætates teneras adoriri folet, in epilepfia adultorum tam fanguinis detrahendi quantitas, quàm catharticorum dofis adaugeantur. *Sydenh. proceffus integri in*, &c. p. 507.

On the Engliſh difeafe.

times, till the accidents of the disease were a little calmed; he then prescribed the use of mercurials, which were succeeded by the use of baths and astringent powders. By this method, which appears not a little violent, and which is directly opposite to that which the best physicians have pointed out for the cure of convulsive motions, Cheyne assures us, that he has saved all his patients, “*Quoties, inquit. choream hac methodo curavi, mihi semper ex animo successit, ut possunt testari nonnulli adhuc viventes quos sanavi: huic curæ rarò ultrà tres menses insudavi, &c.*”

Sydenham’s method appears to us to be preferable; independently of its not exhausting the patients strength, and its fulfilling all the other indications; and this wise physician assures us, that it has been confirmed by the most happy success.*

We believe, however, that some advantage may be drawn from emetics used with proper care, in certain cases where the spasm is less. The shock these medicines would then excite throughout the whole machine, would, to all appearance, restore the viscera to a state of equilibrium favourable to health.

SECT. VII.

Of the hernia gutturis, or wen in the neck.

The hernia gutturis is a pretty considerable tumour in the fore part of the neck, formed by

* In quâdam convulsionis specie quæ chorea S. Viti vulgo appellatur, haud pauciores quinque laborantes, & vidi & sanavi ipsemet, venæsectionibus & purgationibus per intervalla celebratis.

a thick and pituitous liquor gathered by little and little between the cellular web of the muscles of the neck, in the thyroid gland, or between the canal through which respiration is performed and the exterior membrane of the same canal. This tumour forms a kind of bag under the chin, which is sometimes an obstruction to respiration and deglutition, and appears very disagreeable to the sight. No body is ignorant that the beauty of the neck consists in its being round, somewhat long, and moderately slender, so that the eminence called *pomum adami* does not appear, especially in the fair sex.

We ought not to confound the *hernia gutturis* with the *bronchocele*, or *hernia* of the *trachea arteria*, which is formed by the displacing a part of the interior membrane of this canal. “ This membrane, being dilated, passes
“ between the cartilagenous rings of the *trachea arteria*, and forms in the fore part of
“ the neck a soft tumour, unattended with
“ pain, of the same colour as the skin, and
“ which extends itself on holding the breath.
“ This kind of disease, which M. Muys in his
“ observations, and Manget in his notes on
“ *Barbette*, have made such mention of, is very
“ uncommon, and is very prejudicial both to
“ the voice and respiration *.”

The wen or *tracheocele*, according to Heister †, is common in Spain, Bavaria, Switzerland, Savoy, and especially among the inhabitants of Tirol. In some countries this de-

* See the commentaries on *Dionis*, pag. 640.

† Pag. 678.

formity is reckoned a beauty, and is attributed by the people to the air they breathe, or the water they drink.

We shall not here treat of the general causes of the hernia gutturis. Every body knows that this disorder appears at all ages, after falls, violent efforts, &c. We shall satisfy ourselves with mentioning those peculiar to infancy, which are more easily remedied than in a more advanced age; and which persons entrusted with the education of children may easily prevent.

There are nurses, says M. Andry ||, who in dressing and undressing children, let the head hang down, nearly as that of a calf hangs out of a cart loaded with these cattle. Nothing is more capable of giving children this disorder. The reason of it is evident; the purse or bag formed by the wen, is, as we have already remarked, caused by a too great extension or dilatation of the fore part of two membranes, one of which covers the outside of the canal through which respiration is performed, and the other the muscles of the neck; so that the straining and pulling they suffer, when the infant's head hangs back inverted, cannot fail of relaxing these membranes, and forming the purse or bag already mentioned, and of giving occasion to the humours to fall into it, and at length, by the consistence they contract by staying there, to form a greater or less tumour, according as the humour which fills the bag has obtained a greater or less degree of thickness; for this humour sometimes resembles honey, at other times pap, tallow, &c.

|| Orthopedie, tom. I. pag. 109.

Care should therefore be taken, that nurses never let the head of a child hang down, when they lay him a-crofs their knees, or on a bed, as they usually do.

It is also an affair of great importance, that children threatened with this disorder should never be suffered to cry very loud. Violent cries swell the membranes and muscles of the neck, and consequently may be very prejudicial in a disease that proceeds only from the too great dilatation, or the too violent straining of these muscles.

Singing, for the same reason may, in this case, be very prejudicial : therefore parents ought to avoid suffering those children to learn music, who appear to have a disposition to the hernia gutturis.

It must be observed, that permitting some children to blow too strongly into a tube, in order to force out something by which it is stopped, the lifting a too heavy burthen, blowing the nose with too much violence, suddenly taking hold of the nose when they are on the point of sneezing, &c. are sufficient to produce this disorder ; for in all these cases, and in all those in which they are obliged to make violent efforts, the neck swells in an extraordinary manner, and its membranes are then exposed to the danger of being pulled, so as to break or relax them.

In short, it is necessary to cause children to be suckled by women who have no scrofulous disorder, and who have never been subject to the hernia gutteris, and also to prevent these children having pap made of raw flour. We have already shewn, in the fifth chapter of the
first

first book, the danger of so indigested an aliment, and the necessity of preferring to it panada made of bread, or the flour of wheat malt. We have even pointed out the advantages children will obtain from the food we have proposed in that chapter. In fine, considering all the inconveniences that attend the general method, it may be presumed, that it will one day be banished, and Van-Helmont's substituted in its stead.

The hernia gutturis seems to differ from the king's-evil only in the seat it possesses; and we almost always see these two diseases reign in the same country. The method of curing the wen in the throat ought then to be nearly the same as that for the king's-evil.

When we open children who die of the king's-evil, we always find the glands of the mesentery swelled, hard, and schirrous; these glands sometimes weigh three ounces, and those have been found that have weighed fifteen.*

We find these same glands equally swelled in children who have died of these wens.

M. Andry greatly recommends the continued use of Epsom salts, dissolved in a certain quantity of water. "This artificial mineral water, says he, penetrates the deepest folds of the mesentery, and dissolves the slimy and viscous matter that obstructs the glands."

We cannot disapprove of the use of this neutral salt; but chemistry presents us with medicines still more efficacious in these kind of obstructions. The foliated earth of tartar, magnesia alba, mercurial and nitrous preparations,

* Orthoped. tom. I. p. 117.

bitters, &c. answer the same purpose, and are almost always preferable.

Plaisters of Vigo, or diabotanium, are justly regarded as the best topics that can be applied to these tumours. We do not set the same value on little linen bags filled with grated cork, and tied to the neck of a child troubled with this tumour, and carried about day and night for several weeks. What virtue can there be in amulets? Is it not astonishing that M. Andry should point out this as a remedy capable of dissolving tumours in the neck?

In short, the tumour formed by the hernia gutturis sometimes becomes so large and deformed, that people are obliged to extirpate it. But this operation ought never to be performed but when the tumour is moveable; for it is very dangerous to attempt to extirpate those that adhere too closely; in which case the surgeon runs the risk of cutting the veins, arteries, and nerves of the neck, and of occasioning the death of the patient, or of rendering at least, the tumour more considerable, and more difficult to be resolved.

The extirpation of the hernia gutturis, when it is absolutely necessary, is to be performed in the following manner: after having made an incision in the skin the whole length of the tumour, and opened the lips of the wound, we should lay hold of the tumour with a hand or forceps, and cut it round its whole circumference, in order to extirpate all its own proper membrane in which it is wrapped up. And here the vessels by which it is supplied are very small, and their little degree of sensibility plainly

ly enough shews, that it does not receive any considerable nerve. There is no necessity for sewing up the wound *; it is sufficient to wash it, and to draw the lips together with an uniting bandage, that begins behind the neck, and whose two heads pass over the wound. If this operation be performed with dexterity, there will only remain an almost imperceptible cicatrice, and the patient will be delivered from a tumour that would have troubled him during the whole course of his life, and perhaps would have shortened its duration.

Kerkringius reports an observation of a young person who was suffocated by the hernia gutturis †. But these cases are very rare: it is more commonly observed, that the persons troubled with this disorder suffer almost no pain, and live for a long time with this inconvenience, which they prefer to the pain they would receive by its extirpation.

Heister assures us, on the testimony of Celsus, that the application of caustics, and even of fire itself, substituted in the room of the operation just mentioned, is sometimes followed by a happy success; and that there is no danger in making use of it, when the hernia gutturis is not too inveterate, and does not adhere too strongly to the large veins of the neck. ||

SECT. VIII.

Of Warts.

Children are subject to small tumours on the face, hands, and feet, that no otherwise deserve

* Les Opérations de chirurgie de Dionis, p. 641.

† Observ. 148.

|| Chirurg. p. 111. Cap. CIV. Sect. III. p. 682.

the attention of surgeons, than as they disfigure the parts on which they grow. These round and rugged elevations are composed of small points like the heads of leeks. At least from this pretended resemblance, the French give them the name of poireaux, leeks. These excrescences more frequently grow on children than on adults, either from the delicacy of their skin, or from the abundance of their humours, and their glutinous and extremely viscous quality.

Independently of the external assistances we are going to mention, the medicines that may divide the lymph, or render it more fluid, appear the most proper. We ought therefore to prescribe for the children who have a great quantity of these carnous excrescences, a very moist regimen of life.

Many people imagine, that warts are communicated by looking at them too attentively, counting them, &c. but these popular errors are so extravagant and absurd, that they do not even deserve to be mentioned.

The means commonly employed to destroy warts are, tying, cutting, and consuming them.

The ligature is only proper for those that are of a pretty large size, and have only a slender base. This ligature is performed with a horse hair, with silk, &c.

Many prefer the incision of these warts to their ligature. This operation is performed with scissars; but it must not be forgot, that as soon as the warts are cut off, the places where they grew are to be wetted with the oil of tartar, or for want of that with the spirit of sea salt, &c. or a thin covering of powdered alum,
or

or red precipitate, may be laid upon them. Without this precaution, the operation will be performed in vain, and the warts will shoot forth and become larger than before.

The use of detergents and caustics is beyond all contradiction the most efficacious means that can be employed for destroying warts, even to their roots. The pain is not only less, but the cure more certain. Those warts that are small and soft are commonly removed by the sole application of the juices of esula, elaterium, or chelidonium majus. The plant called verrucaria is much recommended by Crollius in his treatise *De plantis signatis*. According to that author, the great virtue of this plant consists in the resemblance of the small excrescences found at the end of its stalk, to the carnous excrescences that form the warts.

When warts are hard, and of a certain size, they should be consumed with spirit of vitriol, spirit of nitre, or spirit of salt. This last, more particularly, is preferable to aqua-fortis. Andry and Dionis at least assure us, that they have seen very considerable eschars and dangerous inflammations of the skin caused by the application of aqua-fortis, which was never the case when they made use of the spirit of sea salt.

In order that the corrosive liquor employed to consume the warts may not act upon the skin around them, care should be taken to cover it with a plaister that has a hole in the middle for the wart to come through. This precaution, which is absolutely necessary for warts spread over the surface of the body, ought to be more scrupulously observed when these excrescences

crefcences are found placed on the eye-lids ; otherwife there would be danger of making the child lofe his fight, by endeavouring to remove this trifling deformity.

Heifter recommends the method of applying a red-hot iron. The pain, fays this author, is fharp, but it is momentous, and the warts never return : but this operation ought never to be made ufe of, with refpect to warts fituated on the eye-lids ; for it would be attended with danger to the fight. We fhould apply to the place that has been touched by the hot iron, the ointment of bafilicum, &c.

Our mountebanks have another method of taking away warts ; they firft rub them for fome time, and then foftening them with the mucilage plaifter, afterwards pick them off with their nails. This method ought not to be adopted, becaufe it is always obferved, that the warts foon after fhoot out a-frefh, and become larger.

In fhort, as foon as warts are cancerous, it is better to make ufe of proper topics, and to defer their extirpation to the laft extremity. The fatal examples related by many authors, and efpecially by Saviardus, confirm the utility of this precept.

S E C T. IX.

Of the Syrian difeafe, or difeafe of the folftices.

The difeafe of the folftices or of Syria, which the Latins have diftinguifhed by the term fovea, on account of the form of the head which feems to be a little crufted, is a real inflammation

tion of the pericranium, or of the membranes which surround the brain *. Plautus has named this inflammation the disease of the solstices, or of Syria, because it had been known to prevail many years together precisely at the approach of the solstices, and that all the slaves brought from Syria were seized by it, and died.

Mercurialis observes, that children are more subject to this disease than adults, and that those attacked by it have a pale look, the skin extremely withered, and the bones of the forepart of the head flattened. A pain in the throat and a weakness of the stomach seldom fails to appear; these are followed by a fever, and delirium, and the patient dies within three or four days.

This disease is the more dangerous, as the children who overcome the first attacks almost always fall into a marasmus.

Mercurialis and Primrosius order children, in this inflammation of the head, nothing but mollifying topics, such as the oil of roses, the ointment of populeum, the decoction of camomile flowers, the oil of camomile, &c.

However, the method of cure ought to be principally founded on bleeding, and the use of lenitives: we might also, in all probability, apply with great success gentle purgatives, bitters, mild dissolvents, &c. These medicines might even be prescribed to infants at the breast, only proportioning the dose to the weakness of that age, making the nurse ob-

* Syriasis est inflammatio partium circa cerebrum vel ejus membranas. *Mercurial. de morb. infant.*

serve a moist regimen, and recommending to her at the same time the disuse of strong liquors, breathing a fresh air, dissipation of mind, gaiety and the moderate use of all the agreeable affections.

Many authors assure us, that the children who are most exposed to the heat of the sun, and who are suckled by a nurse whose milk is too hot, or with aliments too much salted, commonly fall into the disease we are mentioning.

In the southern provinces of France the children of the peasants who are all day exposed to the heat of the sun, are not more subject to this inflammation of the head, than those who live in cities. In a word, this disease is very uncommon, and when children are affected by it, it ought to be considered as the effect of the abundance of the humours, and their direction towards the head, and to be treated nearly in the same manner as the *crusta lactea*, which arises from the same cause, and between which there is a very visible connection.

S E C T. X.

Of the running of the ears.

The running of a serous and purulent matter from the ears, is more common among children than adults; and is generally preceded by an inflammatory pain in that part.

The direction of the humours to the head, which we have so often mentioned in this work, is the principal cause of this disorder. We cannot too often repeat this discovery made by
Mr.

Mr. Stahl, since it not only serves to explain the phænomena of many of the diseases of infancy, but to point out the advantages that may be expected from the progress of age.

Auftrius mentions a fact that is remarkable enough, in relation to the running of the ears : There proceeded, says he, from those of an infant yet at the breast, an alimentous matter of a whitish colour, and without any bad smell. After having often attempted to dry up the source of this disorder, the infant was weaned, though it was only a month old, and by this means was cured in a very short time.

The pain of the ears, which precedes the running, deserves the attention of physicians, as well from the badness of the actual symptoms, as from the fatal consequences that may result from it : it sometimes occasions convulsions, epileptic fits and vertigos ; it frequently forms abscesses in the interior part of the ears, or fistulas that are cured with difficulty ; a leanness is brought on attended with a slow fever, a considerable deafness, and a caries of the bones, &c.

As children cannot describe the seat of their disorders, and are almost always either in a state of oppression or convulsion, we should not satisfy ourselves with feeling the pulse, and searching into the state of the viscera of the lower belly, but should examine all their members : an extraordinary attention on the part of the physician ought to supply the impossibility children are under of telling which part of their bodies is principally affected. We shall know, for instance, that the ear is in danger of some inflammation, when the infant

A a

screams

screams out every time the disordered ear is touched.

Before the injection of any liquor proper to calm the irritation of the ears, or to put a stop to their running, care should be taken, to clean them with an ear-pick, and then to introduce a little wool or cotton first dipped in a proper liquor, as, for instance, in wine in which allum, saffron, myrrh, sedative salts, &c. have been dissolved. Narcotics applied to the ear, or taken inwardly, are commonly very efficacious at the time of the inflammation. The injection of urine is recommended by many authors, especially when the pain is not violent, and it is necessary to dissipate the superfluous moisture of the ears.

The scabs formed in the nostrils, and the running which sometimes proceed from them, deserve nearly the same care as the running of the ears ; for these different disorders always proceed from the same cause. The application of topics ought not however to occasion the neglect of internal medicines, as gentle purgatives and absorbents.

S E C T. XI.

Of frequent yawning.

It is certain that children are subject to frequent yawning, but this yawning is not a disease, at least such a one as is proper to engage the attention of a physician. I am surprized that authors of judgment should enter into particulars so minute and useless, and that Leonillus Faventinus and Kufnerus should treat

with some length of the plethora of infants, of yawning, &c. and that they should treat in so slight and superficial a manner the most important diseases of that age. Is it at all surprizing that children who sleep almost all day, are more subject to yawn than adults? This effect of sleep, and want of exercise, or if they will have it so, this sign of the abundance and thickness of the humours, requires no medicinal assistance, and is subject to no treatment established on solid reasons. Experience proves, that we may neglect this pretended disorder, without subjecting infants to the least danger. We shall therefore proceed to another, and a more useful subject.

S E C T. XII.

On the hydrocephalus.

The hydrocephalus is a disease peculiar to infancy; at least it is very uncommon to see adults attacked with this kind of dropfy : and, indeed, there is reason to presume, when this disease shews itself in youth or in riper age, that it was formed in the most tender infancy. The direction of the humours to the head of the infant, the compression it almost always suffers during its confinement in the womb, and at its passage out of it in the orifice of the matrix, at the instant of the delivery, the softness of the bones of the cranium, the little union of their futures, the horizontal situation in which children are obliged to be placed in the cradle, the quantity of sleep they are permitted to take, and which is really necessary,

are so many causes adapted to determine the accumulation of humours that form the hydrocephalus.

This accumulation of humours is performed between the bone of the head and the pericranium, between the pericranium and the skin, between the dura mater and the bony box of the head, and even sometimes in the ventricles of the brain. We shall repeat on this subject an observation of the illustrious Vesale, which is a proof of his anatomical and medicinal genius.

“ Augustæ Vindellicorum puellæ, says he,
 “ biennis caput in mensibus plus minùs septem
 “ ita increverat, ut nullum viri unquam vide-
 “ rim, quod non mole illi cederet. Fuitque
 “ is affectus, quem veteres hydrocephalum vo-
 “ cârunt, ab aqua quæ in capite asservatur,
 “ sensimque colligitur quanquam ea non inter
 “ calvariam & exterius ipsam succingentem
 “ membranam, aut cutem, (ubi aliàs aquam
 “ reperiri, medicorum libri docent) huic puel-
 “ læ fuerit collecta verùm in ipsius cerebri ca-
 “ vitate, adeóque in dextro & sinistro illius
 “ ventriculis: quorum cavitas amplitudoque
 “ ita increverat, ipsumque cerebrum ita ex-
 “ tensum fuerat, ut novem ferè aquæ libras,
 “ aut tres Augustanas vini mensuras (ita me
 “ ament superi) continuerint. Ad hæc ut ce-
 “ rebrum in capitis vertice, membranæ quasi
 “ modo erat tenue, & quodammodo conti-
 “ nuum cum sua tenui membrana corpus; ita
 “ quoque calvaria fuit prorsùs membranea,
 “ tantaque duntaxat sede ossæ, quanta calva-
 “ riæ puellæ erat amplitudo, priusquam ca-
 “ put extra modum increfceret: eâ ferè rati-
 one,

“ one, quâ in nuper natis pueris, frontis os &
 “ verticis ossa constare cernimus, ubi illa alio-
 “ quin mutuo sunt contermina & in admodum
 “ pueris, insigni intervallo amplitudinêque vi-
 “ suntur membranæ. Cerebellum interim, ce-
 “ rebrique universa basis, secundum naturam
 “ habebant uti & nervorum productiones, dein
 “ nullis prorsus sedibus, quàm in cerebri ven-
 “ triculis adeo atque dixi adauctis, aquam re-
 “ peri, & puella ad mortem usque sensibus
 “ omnibus integrè est usa : & quoties caput,
 “ quum illam paucis antè mortem diebus con-
 “ spexi, ab adstantibus movebatur, & non ni-
 “ hil, quantumvis etiam leviter, erigebatur, gra-
 “ vis illico tussis puellæ molesta fuit, cum
 “ difficili respiratione & totius faciei miro ru-
 “ bore, sanguinisque suffusione & lacrymarum
 “ proventu, reliquo corpore mediocriter habuit :
 “ et si laxis infirmisque, sed non resolutis ta-
 “ men fuerit articulis, neque presenti etiam
 “ insigni macie, aut etiam serosi in membris
 “ tumore, aut morbi comitalis, aut tremoris
 “ alicujus notis. Jecur cum paulò post mor-
 “ tem spectaretur, subpallidum & non nihil
 “ naturali aliàs jecore contractius duriusque
 “ occurrit : liene interdum maximo & molli
 “ conspicuo, perinde ac si jecoris vices aliquan-
 “ diu obivisset ; adeò ut cum præsentibus me-
 “ dicis nihil æque admiratus fuerim, ac tan-
 “ tam aquæ vim in cerebri ventriculis, absque
 “ majoribus symptomatibus tamdiu fuisse col-
 “ lectum.”

The celebrated Tulpius has found, in two different subjects who died of this disease, two pounds of water contained in the right ventricle, which was enclosed in a kind of bag, that

would not permit it to pass into the left ventricle.

Wepferus has made the same observation on two animals. The artificial hydrocephalus, mentioned by Fabricius *, for which the parents were condemned to die, was not of this kind; for the water was spread through the whole surface of the brain.

It is difficult to know the kind of hydrocephalus that depends on the accumulation of the humours in the ventricles of the brain: the most certain signs we can have in this case, are, the swelling of the face and eye-lids, the slowness of the pulse, an almost continual heaviness, a delirium, &c.

The hydrocephalus formed between the bones of the head and the pericranium, are easily distinguished by the symptoms that accompany them, by the prodigious size of the head, by the height of the tumour observable on its upper part, by the colour of the skin, its swelling, want of sleep, the involuntary flowing of the tears, &c.

The medicines proper for all kinds of dropsies may be employed in that of the head, only proportioning the dose to the age of the children who are attacked: anti-epileptics are sometimes efficacious, especially when mixed with cephalics, and their use continued for some time.

Placentinus says, that he has seen children cured of this horrible disease by the constant use of dry aliments, together with some stomachics.

Hildanus recommends fomentations made with linen cloths dipped in lime water, and repeated many days together. The benefit of this topic has been confirmed by the most happy success in external hydrocephaluses.

Pison gives a very striking example of the efficacy of cauteries applied to the nape of the neck, and the hind part of the head *. Scarce had the patient, who desired his assistance, followed the advice given him, to apply a cautery, than he found ease; the tormenting pains he felt in the night which prevented his sleeping were appeased; the flowing down of the water, occasioned by the cautery, made the tumour in the head, and the swelling of the face disappear: In a word, these are the terms of the illustrious physician just mentioned: “Dic-
 “tum factum, aquâ virore quodam insigni, et
 “bili prassinæ finitimâ ubertim, per plures dies
 “dimanante, acerbam ille inquietamque vi-
 “tam jucundissima statim quiete commutavit.
 “Cujus beneficii memoria adeo illius hæsit
 “animo, ut nunquam me obviam postea of-
 “fenderit, quin tanquam soterâ suum am-
 “plexaretur.”

A female infant, who had a true hydrocephalus, had the misfortune to fall into a well, precisely at the time when the medicines prescribed by the same author, began to make him plainly foresee a cure. †

In fine, when internal remedies and topics give no ease to the patient, nor produce any diminution in the symptoms, many physicians

* Obser. Med. p. 43.

† Car. Pison. Observ. Medic. p. 42.

advise scarifications of the skin of the inferior part of the head. Though Primrosius, Mercurialis, Huckerus, &c. affirm, that this operation has never been attended with success, yet it appears to be necessary when all other assistances have failed ; but it ought not to be attempted till the last extremity, and after the trial of all other methods, particularly the application of epispastic plaisters on the back part of the head.

S E C T. XIII.

On vermin ingendering in the head.

This disease never takes place but in the children who are neglected by their mothers and nurses ; and, indeed, it has been remarked, that it seldom happens to children who are kept clean and combed every day. It is very necessary that the mothers or nurses of the lower people should be more attentive to the fatal consequences of their negligence : Many children who fall into a dreadful leanness, and at last die of a slow fever, might have been preserved, had the least care of this sort been taken of them, by the application of a little mercurial ointment to the head, or oftener cutting their hair, &c.

S E C T. XIV.

Of the leanness of children.

We have already treated, in the first chapter of the second book, of the leanness of children at the time of their weaning, and have observed,

served, that nature brings it on in order to discharge the vessels of the lacteal juices they contain, and to dispose children to sustain, without danger, the action of the more solid aliments that are usually made to succeed the use of milk. We have also mentioned, under the article on puberty, that leanness occasioned by growth, which children almost always overcome, especially when they do not give themselves up to any excess. We shall now, therefore, only treat of the leanness attended with a fever, and other symptoms that may make it considered as a dangerous disease worthy the attention of physicians.

Before we prescribe any medicines to children who have a slow fever, and fall into a marasmus, we ought to have a just knowledge of the causes that have reduced them to that state of decay. Every kind of leanness requires a particular treatment: that, for instance, which proceeds from a want of aliments, watchings, fatigue, &c. requires assistances that cannot be proper for a marasmus, that depends on obstructions in the glands of the mesentery, on a looseness, a lientery, or on living in a climate favourable to this disease. It is therefore very necessary to question the mothers and governesses of children, in order to discover the cause of their leanness.

It frequently happens, says M. Andry, that the faces of children lose their plumpness, and their backs and sides grow lank and emaciated. When it is suspected that this leanness is owing to the infant's pining, we should endeavour to discover what it is that makes him pine, and we shall generally perceive that greater fondness

ness is shewn to some other infant in the house than to him, and that on this account he is filled with jealousy: We cannot conceive the sensibility of an infant in this respect, he conceals his uneasiness within his own heart, and keeps it an impenetrable secret; we must guess at his pain. The only means of discovering it is to shew less fondness to his brother or sister, to whom there has before been shewn a great deal. We should then carefully observe his eyes, and we shall soon know if his disorder proceeds from jealousy; for if it does, he will no sooner perceive this change, than his looks will become more serene, and he will appear less melancholy and thoughtful than usual. As soon as the mystery is discovered, all about him should, in his presence, avoid all the caresses they were used to bestow on others, and as much as possible bestow them on him, but in such a manner that he does not perceive the plot; for infants are on their sides extremely subtil, and more so than can be imagined: they search into the minds of those that approach them; and in this respect we are frequently their dupes; they apply themselves to nothing but to penetrate into us. *

That infants are capable of jealousy is a point that cannot be doubted; they are so while even at the breast. “I have seen, says M. Austin, “an infant jealous that could not pronounce a “single word, and with a pale look and angry “eye already look at another infant that sucked “with him.” †

* Orthopedia, page 157.

† Educ. des Enf. par M. de Fenelon archevêque de Cambray.

Some authors have attributed the excessive leanness of children to witchcraft practised by old women. Plutarch mentions a kind of forcerers who rendered all the children sick whom they approached. Mercurialis believes, with reason, that the breath or touch of unhealthy people may communicate a mortal consumption to children. Is not the itch communicated by the bare touch of the person troubled with that disease, and sometimes even by touching the linen or cloaths he has worn? How many malignant fevers and other diseases are transmitted by the breath of the sick, or the infectious smell of the matter excreted from their bodies in the course of their illness? The too attentive look of a person emaciated, hideous and unhealthy, like most of those old women who have been treated as witches, is sufficient to render some infants consumptive. Have we not seen persons seized with an ophthalmy from their having looked with too fixed an attention on another person who had the same disease? We shall relate on this subject a passage from Montagne, which proves the power the imagination has over our bodies.

“ I would live, says he, by the sole assistance
 “ of persons healthy and gay. The sight of
 “ the agonies of another throws me into a sen-
 “ sible agony, and my sensations are often sub-
 “ dued by the sensations of a third person.
 “ One who has a cough continually irritates
 “ my lungs and throat. I visit more unwill-
 “ ingly the sick, for whom I am interested by
 “ duty, than those from whom I expect and
 “ feel less regard. I seize the disorder I
 “ contemplate, and it lodges within me, and
 “ I do

“ I do not think it strange that fevers and
“ death are communicated to those who meet
“ and make way for their approach. Simon
“ Thomas was a great physician in his time.
“ I remember that meeting with him one day
“ at Toulouse, at the house of a rich consump-
“ tive old man, with whom he was dis-
“ coursing on the means of his cure, he told
“ him that one was to give me an occasion to
“ be pleased in his company, and that fixing
“ his eyes on the freshness of my countenance,
“ and his thoughts on that sprightliness and
“ vigour that sprung from my youth, and
“ that filling all his senses with that flourish-
“ ing state I then was in, the habit of his body
“ might be amended ; but he forgot to add,
“ that mine might also be impaired. * ” In fact,
diseases are sometimes communicated as swiftly
as the passions. The temper of the persons
with whom we live has almost always an influ-
ence on ours. Are we not commonly gay, sad,
or fond of silence, according to the company
we frequent ? Why may not this same sym-
pathy exist with respect to diseases which are
scarcely at all different from the passions, or
which do not differ from them so much as
might be imagined ?

* Montagne, liv. I. chap. 20.

BOOKS printed for THOMAS FIELD,
Bookseller, at the Wheat-sheaf, the Cor-
ner of Pater-noster Row, Cheap-side.

I. **T**HE Diseases of Women with Child,
and in Child-bed : As also the best
Means of helping them in Natural and Unna-
tural Labours. With fit Remedies for the se-
veral Indispositions of new-born Babes. To
which is prefixed, An exact Description of the
Parts of Generation in Women. A Work
much more perfect than any now extant, and
very necessary for all, especially Midwives and
Men practising that Art. The Eighth Editi-
on, corrected, and augmented with several new
Figures, and with the Description of an excel-
lent Instrument to bring a Child that comes
right, all correctly engraven in Copper. Writ-
ten in French by FRANCIS MAURICEAU, and
translated by HUGH CHAMBERLEN, M. D.

II. The History of England, from the ear-
liest Accounts to the Accession of his present
Majesty King GEORGE II. including the History
of Scotland and Ireland, so far as they have any
Concern with the Affairs of England. Collected
from the most impartial Writers, and digested
into the most easy and familiar Method ; where-
by may be seen the Connection one Period, or
Reign, has with another : With proper Re-
flections through the Whole, tending to illus-
trate the Narration, and to fix the amiable
Sentiments of Liberty in the Hearts of the
British Nation. Embellished with the Heads
and Monuments of the several Kings and
Queens, curiously engraved on Copper. By
an Impartial Hand. Price bound 6 s.

BOOKS printed for THOMAS FIELD.

III. A new and easy Introduction to the Study of GEOGRAPHY, by way of Question and Answer ; principally designed for the Use of Schools. In Two Parts. Containing, 1. An Explication of the Sphere ; or of all such Terms as are any ways requisite for the right understanding of the Terraqueous Globe. 2. A general Description of all the most remarkable Countries throughout the World ; of their respective Situations, Extents, Divisions, Cities, Rivers, Soils, Commodities, Curiosities, Archbishopricks, Bishopricks, Universities, Customs, Forms of Government, and Religion, &c. To which is added, A compleat Set of MAPS. Likewise a compendious Dictionary of the most common Names of ancient Geography, explained by those which they now bear : As also an Alphabetical Index of the principal Places that are mentioned throughout the Work. Written originally in High Dutch by the late celebrated Mr. HUBNER, and now faithfully translated, with Additions and Improvements. The Fourth Edition, carefully revised and corrected by J. COWLEY, Geographer to his Majesty. Price 3 s.

IV. The Adventures of TELEMACHUS, the Son of ULYSSES, by the Archbishop of Cambray, in French and English. The Original carefully printed according to the best Editions of France and Holland ; and the Translation, which is entirely new, revised by Mr. DES MAIZEAUX, F. R. S. In Two Volumes. The Second Edition corrected, and rendered more literal. Price 6 s.

N. B. The French or English may be had separate. Price 3 s. each.

BOOKS printed for THOMAS FIELD.

V. **TERENCE's** Comedies, translated into English, and the original Latin, from the best Editions, on the opposite Pages, with critical and explanatory Notes. To which is prefixed, a Dissertation on the Life and Writings of **TERENCE**, containing an Enquiry into the Rise and Progress of dramatic Poetry in Greece and Rome, with Remarks on the comic Measure. The Second Edition. By **Mr. COOKE**. In Two Volumes, 12°. Price bound in Calf 6s.

VI. The History of **EDINBURGH**, from its Foundation to the present Time. Containing a faithful Relation of the publick Transactions of the Citizens; Accounts of the several Parishes; its Governments, Civil, Ecclesiastical, and Military; Incorporations of Trades and Manufactures; Courts of Justice; State of Learning; Charitable Foundations, &c. With the several Accounts of the Canongate, St. Cuthbert, and other Districts within the Suburbs of Edinburgh. Together with the antient and present State of the Town of Leith, and a Perambulation of divers Miles round the City. With an alphabetical Index. In Nine Books. By **WILLIAM MAITLAND, F. R. S.** Author of the History of **LONDON**. The whole illustrated with a Plan of the Town, and a great Variety of other fine Cuts of the principal Buildings within the City and Suburbs.

1875
Feb 24 9-18

Received of Mr. J. B. Smith
the sum of \$100.00

for the purchase of
a lot of land

in the town of
New York

for the purpose of
building a house

on the lot of land
in the town of

New York
for the purpose of
building a house

on the lot of land
in the town of

New York
for the purpose of
building a house

